U.S. DEPARTMENT OF ENERGY
PUBLIC MEETING ON ENERGY CONSERVATION
STANDARDS FOR
REFRIGERATED BEVERAGE VENDING MACHINES

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Wednesday

June 17, 2009

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The Public Meeting convened in the Department of Energy, Room 8E-089, 1000 Independence Avenue, S.W. Washington, D.C., at 9:00 a.m., Doug Brookman, facilitator, presiding.

PARTICIPANTS:

DOUG BROOKMAN, Facilitator
BOB McGARRAH, USA Technologies
STEVEN COUSINS, Coca-Coca Company
MARC CHESSEROT, shecco
AMANDA STEVENS, Energy Solutions
EDWIN HORNQUIST, Southern California Edison
ANDREW deLASKI, Appliance Standards Awareness Project
GLEN SELFRIDGE, Royal Vendors
RAY McFADDEN, Royal Vendors
TRENT ROTH, Dixie-Narco/Crane
TROY DOOM, Dixie-Narco/Carne
JAMES MATHIS, Dixie-Narco/Crane
NINA TARLEY, Pepsi Co.
KRISTEN RAYMOND, Department of Justice
MARGO FAIER, Department of Justice
MICHAEL KIDO, Department of Energy
CHARLES LLENZA, Department of Energy
MICHAEL FRIEDRICHS, Department of Energy
FRANCINE PINTO, Department of Energy
SAM JASINSKI, Navigant Consulting
ARIS MARANTAN, Navigant Consulting

PARTICIPANTS (Continued):

MATTHEW MILLARD, Navigant Consulting
JEFFREY KINGMAN, Navigant Consulting
SRIRAM SOMASUNDARAM, Pacific Northwest
National Laboratory
MICHAEL SCOTT, Pacific Northwest
National Laboratory
GRAHAM PARKER, Pacific Northwest
National Laboratory
ERIC ANDERSEN, Pacific Northwest
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REBECCA DUFF, ICF International
MICHAEL REDMAN, American Beverage
Association
NED MONROE, National Automatic
Merchandising Association
LANE BURT, National Resources Defense
Council
AMANDA KORANE, American Council for an
Energy Efficient Economy

TABLE OF CONTENTS

P R O C E E D I N G S

(9:14 a.m.)

MR. BROOKMAN: Okay. Let's please take your seat and let's get started.

Good morning, everybody, and welcome. This is the U.S. Department of Energy's public meeting on energy conservation standards for refrigerated beverage vending machines. Glad you could make it here. Welcome to Washington.

And we're going to start off this morning with welcoming remarks from Charles Llenza.

MR. LLENZA: Welcome here to the Department of Energy. On behalf of my boss, Ron Lewis, and the rest of the team, I welcome you here to the beverage vending public meeting for the NOPR. And it's been a long three years. So we hope that we get good inputs from all the parties here on our work

MR. BROOKMAN: Thank you.

Are you okay? Yes?

PARTICIPANT: There's one more person.

MR. BROOKMAN: Okay. Well, they can join us midstream.

It's our tradition to give everyone a chance to introduce him or herself. Please say your name and organizational affiliation. I'll start over here with Bob.

Not all of you will be on the record for this. This is a matter of courtesy.

Bob.

MR. McGARRAH: Bob McGarrah, USA Technologies.

MR. COUSINS: Steve Cousins, the Coca-Cola Company.

MR. HORNQUIST: Edwin Hornquist, Southern California Edison.

MS. STEVENS: Amanda Stevens, consultant for Pacific Gas and Electric Company.

MR. deLASKI: Andrew deLaski,

Appliance Standards Awareness Project.

MR. McFADDEN: Ray McFadden, Royal Vendors.

MR. SELFRIDGE: Glen Selfridge, Royal Vendors.

MR. ROTH: Trent Roth, Dixie-Narco/Crane.

MS. TARLEY: Nina Tarley, Pepsi Co.

MS. RAYMOND: Kristen Raymond, Department of Justice.

MS. FAIER: Margo Faier, Department of Justice.

MR. KIDO: Michael Kido, Department of Energy.

MS. PINTO: Francine Pinto, Department of Energy, General Counsel's Office with Mike.

MR. LLENZA: I'm Charles Llenza, Department of Energy.

MR. BROOKMAN: I didn't introduce myself. Doug Brookman.

(Laughter.)

MR. BROOKMAN: Nice to see you. Please.

MR. KINGMAN: Jeff Kingman, Navigant Consulting.

MR. MARANTAN: Aris Marantan, Navigant Consulting.

MR. JASINSKI: Sam Jasinski, Navigant Consulting.

MR. MILLARD: Matt Millard, Navigant Consulting.

MR. SOMASUNDARAM: Sriram Somasundaram, Pacific Northwest National Laboratory.

MR. SCOTT: Michael Scott, Pacific Northwest National Laboratory.

MR. PARKER: Graham Parker, Pacific Northwest National Lab.

MR. BROOKMAN: Start over here, please.

MR. DOOM: Troy Doom, Dixie-Narco/Crane.

MR. MATHIS: Jim Mathis, Dixie-Narco/Crane.

MR. MONROE: Ned Monroe, the National Automatic Merchandising Association.

MS. DUFF: Rebecca Duff, ICF International and Support Energy Center.

MS. KORANE: Amanda Korane, American Council for an Energy Efficient Economy.

MR. ANDERSEN: Eric Andersen, Pacific Northwest National Laboratory.

MR. ASHLEY: John Atchley, Elstat Americas.

MR. REDMAN: Mike Redman, American Beverage Association.

MR. BROOKMAN: Thanks. Thanks to all of you.

Did we miss anybody?

(No response.)

MR. BROOKMAN: Okay. Just a quick run-through on the agenda. I think all of you have received a packet when you came in the

door. I think probably everybody handed off a business card as you registered at the front desk. The Department will make a copy of the attendees for this meeting today.

You can see we're going to start off, for those of you who are looking at this agenda, we're going to start off with a rulemaking overview. Immediately following the overview there's an opportunity for each of you to make brief summary comments about the issues that matter to you today. So we are going to provide that opportunity to you.

We'll take a break mid-morning around about 10:30 or 10:45 or so. Following that, we're going to have a description of the engineering analysis, and then energy use analysis and life cycle cost analysis.

Around about 12:15 or so we'll break for lunch. Following the luncheon break, we'll do national impact analysis, trial standard levels, manufacturing impact analysis, and then following that utility

impact analysis, employment impact analysis, environmental assessment, regulatory impact analysis.

We'll break mid-afternoon when we need to take a break, whether that's 3:15 or whenever that is, and then at the end of the day there's yet another opportunity for those of you that wish to do so to raise additional issues, make summary comments.

We'll close out around about no later than 4:15, 4:30ish with next steps and a few closing remarks.

So that's the plan for today. Questions, Comments about the agenda as written?

And, in particular, anything that you came here to discuss that doesn't fall in the scope of the agenda as written?

(No response.)

MR. BROOKMAN: Okay. So this looks good. Then to Charles.

MR. LLENZA: Welcome to the

Department of Energy's beverage vending machine Notice of Proposed rulemaking public meeting.

The main purpose of our meeting today is to invite the stakeholders comment on the proposed energy conservation standard levels and request recommendations for alternatives to our presented methodologies; characterized results; in addition, to discuss specific issues related to the analysis. We seek your input on our work on the analysis and methodologies assumptions, data and results of the analysis.

We welcome comments from the participants in written form and/or in today's meeting, and please note that the NOPR comment period ends July 28th, 2009.

Under the statutory authority of EPACT, we are to issue a final rule no later than August 8, 2009, the standard levels becoming effective on or after August 8th, 2012.

We've also gone through the series of steps in order to get to this meeting today. So far the actions from the Department on the beverage vending machine rule: we issued test procedures in December 8, 2006; the framework document was published in June 28, 2006; we had an advanced notice of proposed rulemaking June 16, 2008; we have a technical support document that's posted on the DOE website of all our analysis and work here at the Department; we published a notice of proposed rulemaking on May 29th and then today's meeting. Today's meeting would be the final step before our final rule is issued on August 8, 2009.

We all know the seven factors as described in EPCA, and the selection of our proposed standards, we have seven TSLs selected for Class A; six TSLs selected for Class B; and the way we have come up with these, our different TSL levels, is that we go from the most efficient to the less efficient

levels for each class.

At the end of the analysis is a summary of the potential benefits that outweigh the potential burdens, and that's what we try to focus on for the recommended TSL levels.

And on slide 7 we show what we have proposed in terms of for equipment Class B and Class A, and these are the energy conservation equations that correspond to each.

MR. BROOKMAN: So that is a summary, an overview from Charles. Now there's an opportunity for any of you that wish to do so to make brief summary remarks about your issues and your concerns.

Did anybody sign up to do this in advance? Bob did. We'll start with Bob since he did what he was supposed to do.

MR. McGARRAH: That's what happens when you retire and have a lot of time.

(Laughter.)

MR. BROOKMAN: And all of you, you know, I didn't do the ground rules. So let me just remind you very briefly. I think all of you are familiar with this.

I'd ask that you please speak one at a time. Please say your name for the record. I'm going to be cuing people by name as best I can to speak. I also wish to encourage follow-on comments. So after I say your name, you don't have need to say your name and organizational affiliation every time. It's sufficient just to say your name.

Please keep the focus here. Turn off your cell phones or turn them on silent mode, and if you need to have a sidebar conversation with someone, these microphones work rather well. We can hear you. So please take that sidebar out of the room, and if you'd share the air time, be concise today. There's a lot to be said in a fairly short amount of time. That would be helpful to everyone.

So then, Bob, please.

MR. McGARRAH: Ladies and gentlemen, thank you for the opportunity to once again discuss the energy savings opportunities in the improved design of refrigerated beverage vending machines.

The report to date, the TSD, is probably one of the most factual pieces of information compiled about the vending machine that I've ever seen in one document. Nice job, guys.

In reviewing the report, I went back to the root, the original of the task we embarked on in 2005, and that root is the Energy Policy and Conservation Act. Reviewing this group's genesis, I'd like to read from the report prepared on this project by the Department of Energy, page 12, Item 5.

"The EPCA, Energy Policy and Conservation Act, precludes Department of Energy from adopting any standard that would not result in significant" -- significant --

"conservation of energy."

I do not believe that we've established that direction and we are taking as a result a path that may probably not result in any significant energy savings. I would submit that the current proposal does not result in significant conservation of energy. Unless the installed base is included in the standard, the energy efficiency achieved will be minimal and have little impact on energy presently consumed by refrigerated beverage vendors.

Currently produced equipment meets or exceeds the standards proposed for implementation in three years. Purchases since 2003 met ENERGY STAR Tier 2 requirements, and the regulations we're proposing for implementation are no more rigorous than the standards currently being met voluntarily by the industry.

I don't see any savings greater than what we are currently achieving, and I'll

explain a little bit about that in a minute.

Savings by the elimination of equipment is not true savings, but only a reduction in the energy usage by reduction of the number of energy using products.

Further, the Energy Policy and Conservation Act, as required by Sections -- and I'm not going to read -- well, I should read some of them -- 325(o), 345(a), 342(c) 4(a), they say simply this. We have to improve energy conservation, use less energy, and we have to make it possible with greatest new technology. I don't know that we're doing that.

Technology is available. It's tested. It's in use today that provides greater energy savings than achieved by current ENERGY STAR II machines. In fact, technology can be retrofitted for less than $100 a machine, well within the scope and criteria established in the report.

The report on refrigerated

beverage vending machines is complete, exhaustive, and more than reasonably accurate. Ownership of the five million-plus vending machines or refrigerated beverage dispensing machines is primarily in the hands of two companies: Coca-Cola Company and Pepsi-Cola Company.

Either through their own companies or through subsidiaries, these two brands own and operate 95 percent of cold beverage vending machines in the United States. That's on page 45 of the study. These two companies purchase 90 percent or more of the total beverage vending machines produced annually in the United States. There's a table on page 47 and there's comments on page 60 to that effect.

The energy used to operate these machines is calculated on page 7 and 8 of the report, along with the emissions associated with this level of energy generation. The tables on page 90 also show consumption levels

for various equipment types. This report calculates the potential energy savings and has comprehensive cost-benefit analysis and projections into the future, page 10.

What it states specifically or by interpretation are several indisputable facts. First, vending machines consume a lot of energy.

Second, machine purchases are going down and machine energy consumption per machine is rising due to the shift to a higher energy consuming glass front-enders. That's on page 67. I'm sorry. Page 76.

Third, projected machine life, according to the Coca-Cola Company is declining from 13 years to about ten years. That's on page 57.

Fourth, the manufacture of new machines has declined dramatically in the last ten years to approximately 25 percent of a high of 200,000 machines in the 1990s. So less than 50,000 machines today, a huge

decline.

Fifth, machine placements. Total machines on location is also declining with Coca-Cola reporting picking up 200,000 or more machines a year while purchasing substantially less than 50,000 machines per year. Industry production figures confirm this alarming drop in new equipment purchases.

Machines on location will have a projected drop to under one million by 2020. That's less than 13 years. That's on page 79 of the statement.

Sixth, new technology advances are five or more years away, will only generate 20 to 25 percent energy savings, and will cost substantially more than the existing machines.

Word is reported on March 30th that Pepsi Co. was testing energy efficient machines in Washington, D.C. area and expects to be "rolling them out worldwide over the next several years." And I have a copy of that if anybody wants to read it.

Seven, the current flow to existing machines, approximately five million Coke or Pepsi machines combined total, and the current new equipment purchased per year, under 100,000 units, it would take 50 years to replace the existing float just on a swap-out basis with no provision for any increase in total number of machines or new business.

If Coke's negative replacement number is real at minus 200,000 machines being removed annually and not being replaced, the vending business will all but disappear in 15 years, if the base of five million were taking out 200,000 per year. And that's just the Coca-Cola company.

Eight, both Coke and Pepsi are shifting purchases in vending machines to Visicoolers or glass front refrigerated boxes. These machines are currently not regulated by any industry or government energy standards.

Nine, the vending machine manufacturers are undergoing significant

consolidation and the industry is in serious trouble. I just learned this morning that one of the companies is moving its entire manufacturing operation and closing one of its plants.

Ten and last, substantial funds are becoming available for energy conservation and reduction of energy consumption for equipment such as vending machines and Visicoolers. It is quite clear the simple facts are that there will be little, if any, substantial energy savings unless the industry significantly increases production and purchase of highly efficient machines. Neither Coke nor Pepsi appear interested in making a capital investment of that size.

And that size would be approximately $150 million for 100,000 machines.

The alterative is to substantially reduce machine populations. It seems population reduction is the course the

industry is set on. This will result in jobs lost, revenue lost for the industry. Remember every 500 machines represents one technician's job. Every machine represents a minimum of 100 cases of product sold annually, minimum.

Route drivers deliver these cases. Their jobs go away. The tax on the employees' salaries, the tax on the product sales, and all revenue and tax opportunities in between disappear. All of the vending manufacturing jobs disappear. It is happening now. I think some of the folks will speak to that.

The vending industry is being legislated out of business. Bottle bills requiring deposits on soft drink containers, the restricting of beverage sales in schools, ENERGY STAR implementation of energy consumption standards have all hurt the vending industry.

There are several alternatives. There is a substantial and immediate

opportunity to reduce energy consumption by refrigerated beverage machines. At once, no need to wait for attrition, 10 or even possibly 50 years based on current purchases and size of existing base with the float.

MR. BROOKMAN: Bob, summarize the rest of your comments.

MR. McGARRAH: I can do it.

MR. BROOKMAN: Okay.

MR. McGARRAH: Cut to the chase.

MR. BROOKMAN: And you can submit that for the record if you wish, your entire

MR. McGARRAH: I think I have.

PARTICIPANT: We have it in the record.

MR. McGARRAH: Over 50 utilities nationwide are providing rebates for purchasing technology. Foster Miller, one of your sources for the report, and a government contractor has tested the technology for performance and reliability. The Department of Energy endorses the technology. This is

not a case of finding the technology solution. It's a case of properly applying centers to adopt the existing technology.

The vending industry, its manufacturers, equipment users are more than capable of implementing the technology almost immediately. Utilities are interested in installing the technology and paying for it, and the customer will benefit instantaneously with substantial savings in their energy bills.

Unique ownership of 90 percent of machines among two entities makes for unprecedented chance to encounter significant savings in a relatively short time. This is an opportunity to do what the government does best, put interested parties together and make it happen with a modest initial incentive. The opportunity is large, but we can only act on it and convert the existing base to a more efficient operation.

We should target stimulus dollars.

I'll save three pages of stimulus dollars.

These machines, the millions of machines that are going to disappear take thousands of jobs with them in manufacturing, service, repair and failing.

Tax revenues, et cetera, I talked about that.

The best and quickest path to achieving substantial energy savings and assure that the best available technology is implemented is to address the 800 pound gorilla, the installed base.

Thank you.

MR. BROOKMAN: Thank you, Bob.

Other summary remarks here at the outside? Please.

MR. SELFRIDGE: Yeah, I would postpone it to later, but I'll be brief.

MR. BROOKMAN: Yes.

MR. SELFRIDGE: I think it's appropriate now.

MR. BROOKMAN: Glen, please say

your name for the record.

MR. SELFRIDGE: Glen Selfridge.

MR. BROOKMAN: Thank you.

MR. SELFRIDGE: Royal Vendors, Incorporated.

When I first received my copy of the proposed rule, I looked at the formula for the Type A and Type B machines, and my immediate reaction was that there's whole a whole typographical error. It seemed to be inverted.

The Type A machine by its very nature, cooling more volume than Type B typically and utilizing a glass transparent door, is inherently less energy using machine than a Type A machine. So it was some surprise that we see a projection that is fully 20 percent more restrictive than that for the Type B.

A little mental exercise here might make this more clear than some I've used with the other hundreds. I think we believe

CSX, the railroad company, the mileage, per ton mile for freight rail is 423. Okay? A freight rail is motorized, engine driven, ground transportation. Okay? Why shouldn't the mileage rating for a ton and a half sedan be on the order of 20 percent better than that? Okay? Over 500 miles per gallon.

It's just a thought experiment. Okay?

Coming out of this meeting, we would like to understand how these formulas are determine given, okay, that reason and given that there might be methods to get to a Class A tank. Why do we use and if we use them, are there restrictions to trade in terms of anything out there that would prevent us doing something that might be allowed under the test?

And that's what I want to get out of this meeting. It will be in my public record.

MR. BROOKMAN: Okay, okay. Do you

wish to comment, Charles? Charles Llenza.

MR. LLENZA: Charles Llenza, Department of Energy.

I think the best thing to do would be to go through our presentation today, and as we get to the different steps, there will be a section that we discuss our results and the analysis of how we got to those results, and that would be a good opportunity at that point to get into more detail.

MR. BROOKMAN: And, of course, the Department would welcome your questions and specific follow-on to make sure you understand that methodology.

Trent.

MR. ROTH: Trent Roth from Dixie Narco.

I would contradict that a little bit. We'll talk about that at the appropriate time, but we feel that the standards actually, when we started doing the math worked out to be correct in the case where we looked at

stack units. In fact, the change from cubic capacity, from can capacity to cubic capacity, when we look at a stack unit compared to a glass front, actually when we do the mathematical equations, we'd come out to the exact threshold on a comparable unit.

So we'll be able to explain why we think it is correct, and why we would disagree with that.

MR. BROOKMAN: I see. So Class A and B work for you as described.

MR. ROTH: It appears that it kind of did what I thought was the original piece of trying to set up to one that has similar parameters. Yes, it does work for us. We'll talk about it at the appropriate time.

MR. BROOKMAN: Great. Okay. We'll have significant, detailed presentation on these matters.

Other summary remarks here at the outset? Andrew, Andrew deLaski.

MR. deLASKI: A couple of remarks.

Is this on? Do you push the button there?

MR. BROOKMAN: No, it's on.

MR. deLASKI: In general, we want to support the proposal. We think it's a solid proposal by the Department for new standards for vending machines.

For Class A machines, the Department had proposed standards that are the maximum level that's cost effective, and I think that's a good policy. It's a policy that we have long advocated for and rulemaking that the Department should focus as the statute requires on setting the standard which maximizes energy efficiency, energy savings, and is cost effective.

Sometimes in the past the Department has gravitated towards setting standards which maximize economic benefits focused on consumers, rather than maximizing cost effective energy savings, and the distinction in those two points is important, and over the 25 or so rulemakings that will be

completed in the next two years has the potential if this stands as policy to be a significant departure for the Department and one that will result in very large energy savings not just in this rulemaking, but over the many rulemakings that are underway right now.

With respect to Class B machines, TSL-3 and TSL-4 seem to have very similar results, economic results. The Department had proposed TSL-3. The difference in energy savings also is pretty small.

That said, we would tend to suggest that if the economic impacts are about the same, given uncertainty in the analysis, I think we'd have to say that they are about the same; that the Department should set the stronger standard and that TSL-4 should be given additional consideration for the Class B machines, given the uncertainty in the analysis and the likelihood that the economic impacts are really about the same.

A key question that we have that hopefully will be dealt with later today I think relates to point that the two manufacturers commented on earlier. My understanding is that the Class A machines, much of the savings come from the application of LED lighting in that equipment, and that the standard proposed for Class B machines does not include, does not imply, is not based on design options that assume LED lighting. Therefore, the large difference in energy and relative improvement, one set of machines looking at a 30 or 40 percent more improvement relative to the best case, the other about 14 percent.

It doesn't work, the current market situation where glass front machines now would become the more efficient option in the marketplace.

We're interested in exploring why TSL-5 for the Class B machines and understanding better why the cost

effectiveness falls off a cliff. That is that DOE has assumed dramatically larger increases in lighting costs for TSL-5 machines relative to -- for the solid front machines relative to the glass front machines and much smaller savings.

And the result is that we have standards that would necessarily be applying to one type of machine but not the other. Understanding that is something I hope I can come out of today, why the difference.

I want to highlight, and just to comment briefly on the issue of significant savings. The issue of significant savings was resolved in the 1980s in NRDC v. Harrington. This standard clearly addresses as proposed clearly a threshold of significant savings. It's not the biggest energy conservation standard the Department will ever do, but when you add up all the pebbles you get some rocks, and that's important to keep in mind as we address each of these energy conservation

standards.

Four quick comments that are cross-cutting that I hope will come up today. If not, I hope we can address them at the end or at some point during the day. One is multi-part standards. DOE has decided that it does not have the authority to set standards for more than one component. We argued early in this rulemaking that DOE should consider control strategies in addition to setting up performance standards. The Department says we don't have the authority.

We think issue, what's come up in rulemaking after rulemaking, we think it's right to be revisited under this new administration. The Clinton administration determined it did have authority for multi-part standards. The Bush folks under President Bush, there was a determination that that authority wasn't there. It's time to revisit again does DOE have the authority to set multi-part standards that would enable

things that require smart controls in vending machines.

I understand it's too late in this rulemaking. August 8th is right around the corner. It's not going to be considered in this rulemaking, but I think the policy needs to be revisited.

Test method, DOE screened out energy saving technologies early in this rulemaking on determining that variable speed technology would not be -- the methods would not be captured by the test method, and this is a real shame. Significant energy savings are not considered in the rulemaking because of this problem in the test method because it doesn't grasp those technologies.

This brings into light or highlights the need for the Department to get moving on revising and updating test methods for this technology, but also for other technologies where control strategies aren't being reflected in the test method. Real

savings are being left on the table.

Carbon valuation, DOE has indicated it's reevaluating its approach on carbon valuation. We think this is important. We welcome the Department's reevaluation of this issue.

I would note that it's about time and something should be done with all due speed. Looking at the maximum level of carbon valuation in this rulemaking, it's about one-third of the maximum NPV calculation, consumer NPV calculation. It's also five to six times the estimate of manufacturer impacts, and this is an estimate that we think is still lower than it should be based on the literature.

The final issue is one that's been nagging at me for several years now at the Department where we consider -- which is the discount of the physical values. The Department continues to apply financial discount rates to physical values like quads of energy, and it in my view is an

inappropriate application of financial tools, financial evaluation tools to discount the value of energy savings and pollution reductions over time.

It was an approach that was applied starting a couple of years ago, and I think it should be discontinued.

MR. BROOKMAN: Thank you, Andy.

So other summary remarks here at the outset before we get into the more detailed presentation?

(No response.)

MR. BROOKMAN: Okay. So before we then launch into the actual presentations -- go ahead, Aris -- there are a few people that joined us and missed the introductions at the outset. Could you state your name and organizational affiliation?

MR. BURT: Lane Burt, Natural Resources Defense Council.

MR. BROOKMAN: Thank you, Lane.

And would you introduce yourself,

please?

MR. CHASSEROT: Yes, Marc Chasserot, Managing Director, shecco.

MR. BROOKMAN: Thank you.

Anybody else that we missed?

PARTICIPANT: (Speaking from an unmiked location.)

MR. BROOKMAN: Good, thank you. Glad you could join us.

Oh, yes.

MR. FRIEDRICHS: Mark Friedrichs. I'm with the Policy Office at DOE.

MR. BROOKMAN: Thank you, Mark.

Okay. So all of you, I believe, have a copy of the slides that are going to be projected up on the screen, and so let's turn it over to Aris.

MR. MARANTAN: Thank you, Doug.

Aris Marantan.

While DOE requests comments and feedback on the proposed standards in this Notice of Proposed Rulemaking, DOE also

requests feedback and input from any stakeholders on the methodology and the assumptions that's in the data that's used in the analysis itself.

So everything that's contained in the Notice of Proposed Rulemaking in the Federal Register is subject to that request for comment.

However, DOE specifically requests comment on a couple of specific issues, and these are listed on the next two slides. Slide 9 starts with industry NPV. DOE is requesting specific comments on the estimated decline in industry net present value at TSL-6 and what impacts this could have on industry parties, including small businesses.

This is summarized in Tables 512 through 515 in Section V(b)(2) of the notice.

The second one is the standards equations. DOE developed a method to develop a standard equation based on the analysis. This is contained in Table B-3 of Section V(a)

of the notice.

The third one is industry impacts as a whole. This is Section V(b)(2) in the notice.

And before we get to the next slide, we will be coming back to these specifically later on in the day when we get to that portion of the presentation. So we'll come back and address these in turn.

Slide 10 has the first three bullets that deal with small businesses in particular. This is the impact on small businesses, how small businesses will be affected due to the new standards; compliance costs for the small businesses; and any alternatives DOE should consider in establishing this standard.

These are contained in Section VI(b) of the notice, and the last one is the standard levels selected themselves, whether the energy savings and related benefits of TSL-6 outweigh the costs. That's specifically

for Class A, and that's contained in Section V(c) of the notice.

So, again, we'll come back to all of these specifically during the day.

Okay. The next section of the presentation deals with the rulemaking analyses. You can see here that the top set of chevrons describe our rulemaking process. We start off with the framework document, and I believe we had our public meeting for that framework document about two years ago.

The ANOPR, or the Advanced Notice of Proposed Rulemaking, laid out the analytical tools that DOE would be using in the rulemaking. We held a public meeting for the ANOPR about a year and a day ago. It was June 16th, as Graham pointed out to me earlier, last year, and today we're at the NOPR stage. This is the Notice of Proposed Rulemaking where DOE is actually proposing a standard.

And we'll start off with a summary

of the analyses that are part of the NOPR. The first part is the revision of the ANOPR analyses, and we will go through the rest of them later today.

But as part of the first step, the revision of the ANOPR analyses, we conduct an engineering analysis, a life cycle cost and payback period analysis and a national impact analysis. So to present the engineering is Sam Jasinski next.

MR. JASINSKI: Thank you, Aris.

As he said, my name is Sam Jasinski from Navigant Consulting, and I'm here to discuss the engineering analysis that the Department of Energy did for beverage vending machines.

First, the main purpose of the engineering analysis is to characterize the cost to manufacturers of producing higher efficiency equipment, and this is typically in the form of cost efficiency curves for each equipment class.

Another goal of the engineering analysis is to evaluate design options. These are technologies that have the potential to when they're implemented in the vending machines to increase and improve their energy efficiency.

Lastly, when necessary, the Department conducts as part of the engineering analysis sensitivity analyses, particular for vending machines. There was a sensitivity analysis done on material prices because variation in material prices could have impacts on the rulemaking.

Leading up to the engineering analysis and also encompassing the engineering analysis is a market and technology assessment. As part of the market and technology assessment, the goal of the market assessment is to develop a qualitative and quantitative characterization of the BVM industry. The main goal of the technology assessment is to develop a preliminary list of

technologies that could increase the efficiency of vending machines.

The details of this market and technology assessment, how it was conducted, and the findings can be found in Chapter 3 of the TSD, but one of the major outcomes of the market and technology assessment is the Department deciding on equipment classes, and this is just how the Department deems it necessary to classify the beverage vending machine equipment available.

The DOE decided that the classification would be into two separate equipment classes, Class A and Class B. Class A equipment, in the decision to classify in these rulemakings, it's usually determined by physical characteristics that affect energy consumption. In this case it was based largely on refrigeration method, certain design features, and vending mechanisms.

So for Class A equipment, these are fully cooled vending machines, and they

typically use a shelf style storage and vending system, and they also typically have a glass transparent front.

Class B machines are treated as anything that can't be classified as a Class A machine in our analyses, and these machines are typically solid or closed front machines that use a stacked storage system or vending method, and they are zone cooled machines.

As I mentioned earlier in the technology assessment, a preliminary list of energy saving technologies is developed, and then after the market and technology assessment, there's a subsequent analysis that's part of the engineering analysis, and there's a screening analysis in which the DOE uses certain criteria to screen out technologies that are either not technologically feasible, not practical to manufacture, install or service, have adverse effects on utility to the consumer, or have adverse effects on healthy and safety.

And after the screening analysis, certain technologies are eliminated, and what we have left are the design options, and the Department of Energy used a design option approach for this particular engineering analysis in which we gathered data on the cost efficiency of these design options for manufacturers or components and flyers and used a computer simulation to determine their effect on the efficiency of the vending machine equipment, and by using the design option approach, the outcomes were six cost efficiency curves, one for each of three representative sizes. A size here, the metric uses refrigerator volume or cubic volume as mentioned earlier for each equipment class.

So the results of the engineering analysis can be found in Chapter 5, but it's important to realize that the results of the engineering analysis are used as inputs for downstream analyses, such as the LCC, which is the life cycle cost analysis later on.

To wrap up, I'd just like to go over a few of the major changes that have been made sine the ANOPR, since it has been a while. Mainly throughout the rulemaking process the Department of Energy continues to look for information with regard to the market and technology assessment, and since the ANOPR the Department has found information that influenced us to increase the external dimensions for both Class A and Class B equipment, and those increases have subsequent effects on things such as wall area, the size of the glass front. The details of that can be found in Chapter 5 of the TSD.

The second major change has been to LED energy consumption and pricing, as well as configurations for Class B. Configuration for Class A remain the same, and this is due mainly to the fact that LEDs are a rapidly developing technology. So new information is constantly becoming available, and details of those changes and explanations of those

changes can also be found in Chapter 5 of the TSD.

So here's back to the snapshot of the big picture, and I think the next analysis that we're going to discuss is the energy use and characterization.

MR. BROOKMAN: In a moment. Let's just pause for a moment. Any questions on the engineering analysis, in particular, what Sam just said about the changes that were made based on the ongoing analysis?

Yes, please, Amanda.

MS. STEVENS: Amanda Stevens. I'm with PG&E.

So I had a question. I know that LED prices were updated based on the commercial refrigeration equipment rulemaking. So for the Class B equipment, I see the price for a fixture goes from about $50 in 2007 to $135 in 2008. Could you talk a little bit about why that pricing is --.

MR. JASINSKI: Sure. Class B,

LEDs for Class B equipment, like you said, were based on commercial refrigeration equipment. Since the ANOPR of the beverage vending machine rulemaking, a final rule has been published for commercial refrigeration equipment. So information between now and then for vending machines has been updated to reflect that because it's originally based on commercial refrigeration equipment.

Specifically for Class B, we found based on manufacturing and stakeholder comment that we were underestimating the number of LEDs in closed front specifically that were necessary to maintain a certain standard of utility in terms of back lighting signage.

So the cost increase is reflective of we are now putting more LED fixtures in to replace the fluorescent system as had been before.

MS. STEVENS: Right.

MR. JASINSKI: So originally it was a one-to-one ratio. If there was a

fluorescent fixture, we replaced it with one LED fixture. Now that number is around one and a half. So for every fluorescent fixture in order to implement an LED fixture, we implement one and a half times the LED fixtures.

MS. STEVENS: I guess my question was more the per fixture cost. I realize there's a 1.5 differential, but per fixture.

MR. JASINSKI: If you're pulling those numbers from that table, the one and a half is implemented before that table. So that is actually one and a half fixtures.

MS. STEVENS: Okay. I can follow that maybe off-line.

MR. JASINSKI: Yeah, we can discuss it later and I can show you the spreadsheets.

MS. STEVENS: Sure.

MR. BROOKMAN: Yes, please, Nina.

MS. TARLEY: Nina Tarley, Pepsi Co.

I would just like to state for the record that the use of LED lights in glass front vendors is covered by intellectual property. Coca-Cola owns the patent. So we're precluded from using it.

MR. BROOKMAN: Thank you.

Okay. Other questions about this, the content in engineering analysis, particularly about the changes from the ANOPR now to the NOPR?

(No response.)

MR. BROOKMAN: Okay.

MR. JASINSKI: Thank you.

MR. BROOKMAN: Thank you.

(Pause in proceedings.)

MR. SOMASUNDARAM: Sorry about the confusion. Sriram Somasundaram, Pacific Northwest National Laboratory.

I will talk about the first bullet and then hand over to Mike Scott.

The energy use characterization step of the analysis, this again was done as

part of the ANOPR, and then revised, updated, subject to the engineering analysis changes to the configuration of the two types of beverage vending machines, Class A and Class B, that Sam just described.

So we re-developed the energy consumption numbers for each of the two classes of beverage vending machines, and then we fed that energy consumption figures for both types of machines installed indoors and outdoors to the life cycle cost analysis, and before we get to the life cycle cost analysis, we have to re-develop the mark-ups for the price of the equipment.

Mike, do you want to describe that or do you want me to continue?

MR. SCOTT: Why don't you go through all of the purpose slides and then I'll come up and do the details.

MR. SOMASUNDARAM: Okay. As part of the ANOPR analysis, we had assumed three distribution channels for the beverage vending

machines. The percentages of shipments through each of the channels were 68 percent, 27 percent, and five percent.

We heard comments from both manufacturers and users of equipment during the ANOPR public meeting that those percentages need to be updated to 85 percent through Channel 1, which is the manufacturer direct to bottlers; and ten percent through Channel 2; and five percent through Channel 3.

So once we incorporated those percentages through the distribution channels, we came up with new figures for the markups, and the percentage numbers that I just described are described on Slide No. 15.

So like I said, these numbers were modified from the ANOPR based on comments at the meeting. So putting in these new percentages of shipments through the three channels, we came up with the overall, sort of the second bullet there, outputs. So the overall weighted average baseline markup for

baseline equipment turned out to be 1.144 for the ANOPR analysis. That compares with 1.226 in the ANOPR.

And the simple explanation of this change is in the fact that the manufacturer direct, if you remember, the manufacturer direct to beverage bottler distributor number went up from 68 to 85, who don't have markups or have a markup of 1.00. So the overall weighted average went down to 1.144.

Now, the overage weighted average incremental markups for higher efficiency equipment also went down to 1.102 compared to 1.137 in the ANOPR analysis, and both of these markups include sales tax.

I believe I will hand it over to Mike Scott now.

MR. BROOKMAN: Let's pause there and see if there questions about these changes based on from the ANOPR to the NOPR analyses and the distribution channels. Any comments, questions on these?

(No response.)

MR. SCOTT: Okay. So from there we proceed to the life cycle cost and payback period analysis, and the purpose of that, of course, is to develop the estimates of the consumer or customer life cycle cost and the notion of how long it takes to pay back an initial investment in more efficient equipment.

The life cycle cost equals the customer price plus the sum of annual operating cost discounted to the base year of the analysis, which in this case is 2012. We do the economic evaluation loosely speaking from a customer perspective. We look at the cost to the customer of purchasing the equipment, but the savings are included in the life cycle cost analysis regardless of to whom they may actually go, and that's by reason of EPCA. We take a look at the operational savings, whether or not the actual owner of the machine gets those savings.

The analysis was implemented as described back in the ANOPR meeting about a year ago in an Excel spreadsheet with add-on macros to estimate impacts in what we chose to be individual states as a way to look at variation in things like electricity prices, sales taxes, installation costs and so on, to obtain not only a point estimate of the average for the country, but also to see how that life cycle cost varied with location.

The description of the analysis can be found in the NOPR itself abbreviated in Section IV, but in addition to that, it is more detailed in Chapter 8 of the TSD, of the technical support document, and the results can be found in Appendix F.

The results are expressed generally as life cycle cost savings, that is, the savings against the baseline equipment, and also a payback period is calculated for individuals who like to look at payback periods.

Okay. Electricity prices. There has been a fair amount of change since the ANOPR, and the principal change is that last bullet on this slide. I'm not going to read through the whole slide. You have it there in front of you. Generally we followed the same procedures as we were a year ago with the difference that electricity price trends have changed between the AEO 2008 reference case and the AEO 2009 reference case.

And we're required to follow that AEO reference case as a central case. That's what the Department does for the default scenario, and then we extrapolate the trend in values from 2020 through 2030 as a forecast to establish prices for the rest of the 30-year forecast period.

We use a 30-year forecast period, and there was a comment about that at the ANOPR stage, to maintain a consistent frame of reference for the full life cycle of products of various lengths because the Department

wants to keep some comparability across rulemaking so that they can look at equipment with different lifetimes and see what the energy savings actually are.

And there's a fairly detailed write-up in the NOPR about the history of that 30-year rulemaking or 30-year time period.

Other inputs to the life cycle cost analysis. Installation costs were updated and then held constant with higher efficiency levels based on industry comments. The installation costs are shown in NOPR and documented in the TSD.

Discount rates were updated somewhat. We obtain our discount rates from a weighted average cost of capital calculations that we do with data on individual companies from a Website called Damodaran Online. It's from New York University, and the data were updated initially for 2008 at the ANOPR stage and then updated again to 2009 in early this year.

The equipment lifetime, there was some comment about that at the ANOPR stage. We had originally, I believe, put in a service life of 14 years average. We were told at the ANOPR stage, no, the average service life is more like ten years with maybe 15 years as kind of a maximum for that, for BVMs. So we made that correction.

Repair cost, there was some discussion of repair cost which got also mixed in with maintenance cost at the ANOPR stage. We believe we've sorted all of that out correctly in the NOPR. We have a baseline repair cost that does increase due to higher cost components at more efficient levels.

We got some comment that I believe it was our base maintenance cost was too high originally. We corrected that and then did some other corrections, all of which is reported in the NOPR. So there were changes to all of those things.

Our results still look about the

same as they did before, although if you look back at the ANOPR, the numbers are considerably different due to all of the changes that were made.

Generally there's a fairly flat life cycle cost curve as you go to higher and higher installation cost, meaning that the operations costs are basically offsetting the higher cost of investment at each level until you get to Level 7, and then you go up to Level 8 and we can discuss why that is. We'll need some help from Navigant on that, but that Max Tech is truly Max Tech. It's a very efficient machine, but it's also a very expensive one, and so the life cycle costs tend to rise.

This is only for one case on the screen here. This is for basically average U.S. conditions for a bottler owned machine in a manufacturing facility. We looked at a whole range of situations, different locations, different ownership and so on. The

detail of all of that can be found in Appendix F of the technical support document if you're looking for it.

We did a similar thing on payback, and there, again, you get a pretty flat payback period. All of the payback periods are less than five years, again, until you get to that Level 8 Max Tech.

And that's an extra slide, and that's it for LCC right now. I think I probably should stop there and wait for comments.

MR. BROOKMAN: Yes. So questions or comments on this series of slides, inputs and these LCC graphics? Andrew.

MR. deLASKI: I'm not sure where this comes in, where this will get discussed, and maybe this is the right time, maybe not. So let me know.

In my opening remarks I brought up this issue or this concern about for the Class B machines, the cost really falls off a cliff,

the TSL-4 and TSL-5. TSL-4 is cost effective, sort of that chart you showed for Class B with the elbow-like.

MR. SCOTT: Much earlier, yeah.

MR. deLASKI: Can you describe what's going on? What is the factor that's driving that up?

MR. SCOTT: I'd prefer to let Navigant handle that one for sure. They're the technological guys on this one.

MR. JASINSKI: Sam Jasinski.

MR. BROOKMAN: Yes, Sam. Go ahead.

MR. JASINSKI: Yeah, that again has to do with the LED pricing increase, again, because of those changes that I mentioned earlier about having to use more LED fixtures in Class B as opposed to the ANOPR. The cost effectiveness of that design option, LED lighting design option increases and that's where you see that big jump at TSL-5 for Class B machines.

MR. deLASKI: So looking at Appendix B in the TSD, it looks like you assumed a $110 increase for LEDs in a glass front machine and a $420 increase in solid front is the way I just calculated here.

That strikes me as a huge differential, more than one and a half times. Is it that much more light that is needed?

MR. JASINSKI: Based on some of the comments that we've received from manufacturers and stakeholders, the difference in the light, the amount of light that is sufficient for each machine is that drastic.

MR. BROOKMAN: Yes, please. Trent.

MR. ROTH: Trent from Dixie-Narco.

We have four lights, as many as four in the closed front machine or our Class B machine and light up the signage. There's no space between the door and the inner door liner, which you have space to do. So you don't get a lot of spreading of the light. So

we do use significantly more light bulbs in a closed front machine than we do in a glass front machine.

So that's where they're getting that, being able to shine a light through and drive the branding awareness that you have through a plastic panel that you sign the light through takes more light. So that's why you have that the way it is.

LEDs, we'll talk about LEDs later, but we don't see significant energy savings today with LEDs at all in glass fronts. We use more energy today. We use about ten percent more energy when we use LEDs versus fluorescent lighting today in the box front because it's still evolving.

Now, we have not explored refractors and different ways, reflectors and other ways to improve that lightability. We have not gone through that exercise, and I would think that would drive that. We haven't done that.

But today the costs for LEDs and LEDs or focused light is difficult, especially when you get in a very tight environment with an LED in a closed front. I don't think you're going to see significant savings.

But it will evolve and it will be there. So that's why you see that today the way it is.

MR. BROOKMAN: Steven Cousins.

MR. COUSINS: Yeah, Doug. I was going to agree with what Trent had said and elaborate even further. Lighting with a Class A versus Class B machine is done differently because the intent and purpose is different. With Class A machines, the lighting is really directed internally so that the product is what's illuminated so that the consumer can make better choices.

On the Class B machine, the lighting is directed externally because we're trying to capture customers who may be long distances away, and we're really doing

trademark merchandising with a Class B machine.

We also have customers. Our primary account customers of Class B machines want to use our merchandising lighting for other purposes, and we're cognizant of that. So actually when Navigant said a one and a half factor in terms of illumination -- and we do have standards around that -- I would expect that it would be more like two and a half just as an intuitive. I don't have --

MR. BROOKMAN: Internal standards or --

MR. COUSINS: Internal standards. Pepsi may have internal standards as well.

MR. BROOKMAN: You wish to achieve a certain level of illumination and brightness, right? And that's what you're referencing.

MR. COUSINS: That's right.

MR. BROOKMAN: Okay.

MR. COUSINS: So I guess what I'm

echoing here is that the purpose of the lighting is different between Class A and Class B, and yes, there is significantly more lighting with a solid door, opaque landscaped sign front than there would be with a glass front machine.

MR. BROOKMAN: Andrew, I'll return to you, but Glen wishes to speak also.

MR. SELFRIDGE: Well, while we're temporarily on this subject, I would also reinforce the difference between Class A and Class B. I would also say that our Type A machine also uses what Navigant calls Super T8s, which actually runs 4-foot tubes on 22 watts a piece.

So is it possible that your analysis was based on the more conventional 32 watt lamp and that you are believing that you're capturing a lot more energy savings than reality would provide when you move in that direction? Because we're already substantially below what you might have used

for your analysis.

MR. BROOKMAN: I see. Okay.

MR. SELFRIDGE: So the advantage isn't as clear.

MR. BROOKMAN: Okay. Edwin, do you wish to follow on? No.

MR. HORNQUIST: No, thanks.

MR. BROOKMAN: Thank you.

So additional comments on this series of slides and this subject matter before we move on?

MR. SCOTT: Okay. Seeing none.

MR. BROOKMAN: Thank you.

MR. SCOTT: All right. Next what I'm going to talk about is the shipments analysis that goes into the national impact analysis. Then I'll stop for a second and let Sriram talk after that about how the trial standard levels were chosen, and then I'll come back up and talk about the evaluation of those.

Okay. So the purpose of the

shipments analysis is to obviously estimate the number of BVMs that we expect to be shipped over time, which has direct bearing on the national impact analysis because over time how many machines out there are being replaced and with what matters.

And then so what we're doing there is doing a forecast of shipments, and it was originally derived from historical shipments, and we still look at those; the replacement requirements based on equipment lifetimes; and then the estimate of equipment mix of baseline and higher efficiency technologies in the stock as the older stock is gradually replaced.

And actually, Bob, you did a nice job this morning of kind of summarizing some of that.

MR. McGARRAH: Sorry about that.

MR. SCOTT: No, that's fine.

So what we did at the ANOPR stage was look at a bunch of material from

consulting companies with reports, some industry periodicals, and we had come up with a small, but -- well, first of all, there had been something of a collapse in the shipments that Bob alluded to earlier from, say, the late 1990s into the early 2000 period, and we acknowledge that, and then we said at the ANOPR period, yeah, but we expect that to turn around and we should have some growth in new shipments.

Well, we were told quite forcefully at the ANOPR stage that, no, essentially all the shipments now are going to be for replacement and, furthermore, they're going to be at a fairly low level.

And we were able to take what data we had together with the comments, and we arrived at a constant number approximately of replacements only at about 90,000 units per year, and the details of that are in the shipments chapter which is, I believe, Chapter 10. Let me look at that for a moment here.

Yeah, Chapter 10 of the technical support document, and so then the next question was, okay, you have that many being shipped. What's their distribution across size classes and Class A and Class B machines?

We had been led to believe by some of the material that we reviewed before the ANOPR stage that Class B equipment was still the majority of equipment being shipped. Again, at the ANOPR stage we were told no, that somewhere between about 50 and 60 percent of the shipments are now actually Class A machines. That left 45 percent for Class B.

Again, in response to comments at the ANOPR stage, we had a size distribution at that point of 33 percent large, 33 percent medium size, and 33 percent small machines. We were told, no, small machines have never been all that popular, and now there are very, very few of them shipped, verging on zero percent.

There was a little bit of back-

and-forth about the question of the size distribution between medium and large machines. There were about four pieces of different data in that testimony that led us to believe that the median sized equipment was probably about 75 percent of the shipments. Twenty-five percent then would have been large.

And so the revised shipments forecast is as you see on the slide, about 90,000 a year, reaching out to 2042 a total of about 2.79 million units shipped over that period.

That's not enough to sustain the what we believe to be the current stock of around two and a half million units. So what happens over time is that the stock level declines to about a million units, a little less than that by 2020 and then stabilizes through the end of the time period, 2042.

And I'll stop right there on the shipments analysis.

MR. BROOKMAN: Questions, comments on this analysis?

MR. SCOTT: Mostly we're looking for confirmation at this point of did we get it right, approximately at least.

MR. BROOKMAN: Glen.

MR. SELFRIDGE: You know, for purposes of discussion it's probably all right, but the industry is in further collapse.

MR. BROOKMAN: Do you wish to say more about that?

MR. SELFRIDGE: Not to go on, but I don't know where it goes from here. What we said last year is kind of reasonable. Now going forward it may be not as reasonable.

MR. BROOKMAN: Mike accurately reflected the information that was given to him. You think it could be worse.

MR. SELFRIDGE: I believe that just because of the current financial situation and all that it is worse than was

discussed.

MR. BROOKMAN: You don't see the decline -- you see the decline to go beyond one million units?

MR. SELFRIDGE: I don't know. This thing is for discussion. These may be okay, but they may be totally under estimated.

MR. BROOKMAN: Trent, Steve? Trent.

MR. ROTH: This is Trent Roth, Dixie-Narco.

I would, I guess, have to look to Coke and Pepsi for direction, but going from where we are today on a recurring basis, I would say around three million installed base is currently out there. It might be a little bit lower, but it's around there. Down to a million installed base would be very low. I mean, we lose a lot of potential market here, but we're not the ones that make the purchases. We make the machines. So I don't know the direction, but that would be a

substantial loss of opportunity to be able to sell products through this channel. So I don't know that it would get that low.

I think it's going to go lower than what we have today probably because manufacturing locations are going out of business or primarily that manufacturing pressure we have with schools and carbonated drinks. I do see a decline in the number of where we are today on an installed basis, but getting to a million is extremely low.

And I think the operators, not just Coke and Pepsi, the operators out there that have locations will demand equipment to fulfill those locations. So I don't see it getting to a million. I don't see it getting that low. I just think there's too much market share and too much gain.

MR. BROOKMAN: Just to confirm, the time frame was 2020 to a million

MR. ROTH: Yeah, but that's still production in ten years.

MR. BROOKMAN: Ten years. Steve.

MR. COUSINS: I would say it's very uncertain to project that the population of installed base of vending machines is going to be stable from where it is now. That's not going to be the case.

Yeah, there continues to be a decline of installed base of beverage vending machines, and there will be, and even in our system we're not really sure where that's going.

You know, Bob alluded to the fact that if we continue on the trend that we are on, 15, 20 years from now there may not be -- you know, full service vending may not exist anymore. That's just based on the trend.

We believe that there will be continued reduction, but it will stabilize somewhere, but where it is not going to stabilize at the point of where we are now. There will be continued reduction.

MR. BROOKMAN: Bob McGarrah.

MR. McGARRAH: I concur with everybody, but I'd like to make an observation. My 45 years in the vending industry allows me access to presidents of most of these vending companies. They help out an old guy every once in a while, and in recent conversations with those folks, they tell me that the industry current number of manufacturers could not stay in business if all they're producing is under 100,000 machines a year. That just is not a scale that they can operate on.

So there's going to be further reduction. We've had plant closings. We've had tremendous consolidation. Crane/Dixie-Narco is consolidating to the South for economic reasons obviously. Royal has closed one of their manufacturing operations several years ago and is leasing out part of their current manufacturing operation. Vendo, the last third of suppliers, moved into a little plant down in Texas. I don't know what

they're doing now. I haven't talked to those folks recently. So this consolidation if it's going to be below the 100,000 level is very, very telling for the industry. It's going to have a tremendous effect on the availability of choice for the Cokes and Pepsis of the world. They'll be narrowed down to possibly one major and one minor source of equipment.

I just don't think that's good, but that's up to them. They do the buying.

MR. BROOKMAN: Okay. Thank you.

Yes, Trent.

MR. ROTH: Trent Roth, again, Dixie-Narco.

Two comments I would make. Is the majority of the machines in the estimate -- and I don't have the exact numbers; we've done some work on this -- but the majority of the machines, actually the majority, I'm talking about 80, 85 percent of the units that are out there today are approaching ten years old. I mean because of the huge influx in numbers

that took place in 1998 and 2000, either those are going to go away because they're getting near the end of their life cycle, also with product changes that have taken place and the changes from stacked units or the Class B units, because of the products that go inside them; they're either going to have to be replaced by Coke or Pepsi or Coke or Pepsi slowly are starting to evolve out of the business. Full operators still have those qualifications to drive those as operators. I don't know if there will be a switch in the business because I can't predict the future, but are full line operators going to allow those locations to dwindle? I don't think so either. I mean, they are certainly going to try to keep the place locations, but again, a lot of the equipment purchases need to be off at some point because frankly, those machines will be too old to maintain and not cost effective to maintain in the coming years just because of the aging value that's out there.

So I don't believe we're going to see the peaks that we ever did in 1998 or 2000. The fact that we did would be bad for the industry because I think that's a lot of what we're paying today the price. I still think a million is too low, and I do think you're going to have to see an influx of new equipment here shortly just because of the aging asset value.

MR. BROOKMAN: Thank you.

Steven Cousins.

MR. COUSINS: I would guarantee that. You have to look at the financial proposition with vending. I mean, the break even point on unit volume case load per year, that continues to fall or that continues to rise rather, and the points of availability continue to rise as well, and beverage companies like Coke and Pepsi, we're constrained with how much we can agree to cost.

So the break even point for a

vending machine over the past ten years has just continued to climb and climb, and that's not going to change we don't think.

So what we've been doing as a system is that we're retiring machines and not replacing them because in some of those occasions those machines were marginally profitable, and that proposition continues to change and has changed dramatically, and Glen made a point around this, you know, given the recessionary times that we've entered into.

Now, I'm not saying that the business is going to go away. I don't think it's going to go away, and you made a very good point that the base of the machines is aging, but I guess my key point here is that to assume that the base of machines is going to remain where it is today would be a mistake. I think it is going to continue to fall. We don't know where it is going to go, but it will stabilize, but it will continue to fall.

I do agree with you, Trent. It's not going to fall as low as a million machines. It's not. I don't think it will fall as low as two million machines either, but it will continue to fall.

MR. BROOKMAN: Yeah, Trent, go ahead.

MR. ROTH: I agree with what Steve said. It will continue to fall. I don't think it has stabilized yet. I do think the purchases will eventually have to come up a little in order to maintain that base of two million or one million. I just think one million is too low. I think it needs to be higher than that.

MR. SCOTT: Can I inject something here?

MR. BROOKMAN: Please, go ahead, Mike.

MR. SCOTT: Yeah. Okay. So what I hear is probably won't fall to a million. That's an inevitable consequence of what the

stock is right now and what 90,000 a year shipments gets you to.

So at some point between 2012 and 2020, 90,000 has to go up to some other level to maintain that level of two million. Is that a reasonable number?

MR. ROTH: Yes. I mean, correct. You're absolutely correct, and that's why we say have an 80,000 installed base. Eventually it's going to force those purchases just to maintain a level that's 30 percent less than what it is today.

MR. SCOTT: Okay. So to be clear, we have to go above 90,000 to get up to stabilize the stock at something over a million.

MR. ROTH: At some point to do that, yes.

MR. SCOTT: Okay.

MR. BROOKMAN: Andrew, let me hit another industry person and I'll come back to you.

Go ahead, Bob.

MR. McGARRAH: Just a certain dimension to what 100,000 machines means, it means $150 million investment, and Coke and Pepsi could address this better than I could. I haven't been there in ten years. But I talk to the bottlers, and those folks are postponing fleet purchases for trucks and vehicles. They're postponing a lot of things now because of the economic turndown, and the first thing they're going to be doing is replacing those trucks and replacing those business essential pieces, and then he will come in at some point after that and post mix equipment will come in at some point after that.

So I don't see even a good economic turnaround getting this vending business jump-started as we used to call it for at least five years, and that is going to have a major impact on the manufacturers. One hundred and fifty million dollars is not chump

change.

MR. BROOKMAN: Consistent with your earlier comment, it will get to the point where they wouldn't have the actual capacity to produce at the levels required.

MR. McGARRAH: Well, that's the manufacturers, but that's something that could happen, yes.

MR. BROOKMAN: Trent.

MR. ROTH: This is Trent Roth, Dixie-Narco.

We will be able to manufacture at the levels because we're only running one shift today. We have opportunity to increase that as we expand or we need to expand. I mean, that's part of what we do.

Today, as Bob has brought up, we are the ones combining facilities from our staff facility down to our cold drink facility. That's part of an acquisition that took place three years ago and claimed purchasing assistance by Dixie-Narco, and

that's part of an evolution that was fully expected to happen. We had to leverage our assets as a company regarding what manufacturing location.

So that's what's happening, but we're all working one shift today. We have opportunity to grow.

MR. BROOKMAN: Andrew.

MR. deLASKI: I just wanted to comment on the shipments issue. It strikes me that dropping from a current stock of three million down to 30 percent in ten years is an awful dramatic shock drop and also is probably not realistic.

I also acknowledge that there's a ton of uncertainty around shipments, but if the stock is twice the size of what your estimate is, that's twice the energy savings. So it has impact in terms of the impact of the rulemaking.

The other thing I would just comment on is there's a tendency in the

analysis to sort of look at what happened recently and just sort of extracted things, and it sounds like to some extent what will happen perhaps is that at one point we were able with what was happening in the late '90s when they had the curves going up, if they were going to keep on going up like that, now there's been a reaction to that and now the curve is going down. So, okay, it's going to keep on going down.

Well, in reaction maybe what we have here is a bit of a cycle like this given the aging stock and that, yeah, some of these actually may be delayed because of the economic times, but they're not going to be put off forever. At some point the machine is going to be replaced.

MR. BROOKMAN: Nina.

MS. TARLEY: I just wanted to make two comments. One, we might have to retire a group of equipment not only because of the age. As Trent said, most of the group is

approaching the life cycle age, but also due to the actual consumption depending on where the DOE mandatory eligibility requirements are. Some of the older equipment will not be able to meet it. So rather than investing the money in upgrading we will have to retire them.

And another comment is I really foresee the shifting of business to the Class A versus Class B.

MR. BROOKMAN: Okay.

MR. SCOTT: May I pursue that a little further?

MS. TARLEY: Please.

MR. SCOTT: Currently we show that over half are now -- we had numbers 50 percent to 60 percent. There were two different estimates given of current shipments being A Class machines. Going forward, since that's the number we're using going forward, is that approximately correct or do you all want to weigh in and say, "No, no, no, that's

different," or there's a trend in the number or something?

MS. TARLEY: I wish I could agree to both. It's very difficult to say.

MR. BROOKMAN: Thank you, Nina.

Steve Cousins, do you have a crystal ball?

MR. COUSINS: No. I would say this. It would be a bad one because where Coca-Cola thought we would be four or five years ago, we're not there, and we felt at one time that we would phase from B Class to A, and now that doesn't seem to be the case. I mean, now I think we're buying more solid front machines.

I mean the trend is going up to the solid front. I guess what I'm saying is there is no crystal ball that is really going to tell us, you know, exactly where we're going to go.

MR. BROOKMAN: Bob -- no, go ahead. Keep going.

MR. COUSINS: I wanted to fall back on this whole thing about the population phase. You know, to have the opinion that just because the machine is there that the business is going to stay, there was a time ten years ago we only had to sell 20 cases for a vending machine to make a profit in a year. You know, now we're talking 100 cases, and it keeps going up.

Now, you think about if you can go to a vending machine and buy a 20 ounce package cheaper than you can buy it from the convenience store, and there are more convenience stores and they're selling beverages now every place you can imagine; the point I'm making is this. It's not a matter of -- there's a financial proposition here, and there are things that are driving the profitability model through a vending machine, and to think that that model doesn't change is erroneous.

I mean, that's one of the reasons

why the base of equipment is falling. So to say that, oh, we're always going to maintain, you know, a certain population of machines out there, you know, because of the profit picture or the financial model is not going to change, that's a mistake.

MR. BROOKMAN: Thank you.

Bob McGarrah.

MR. McGARRAH: Just to comment, the Pogo comic strip had the saying, "We have met the enemy and they are us," and this project, controlling the energy on the vending machine, started way before the economic crisis, and I would suspect that Coke and Pepsi, in light of some regulation changes coming down the road, may have consciously or unconsciously pulled back their purchases not wanting to be stuck with machines that a ten or better year life that may or may not meet standards in five years.

I can't talk to that. I don't work there anymore, but that at one time was a

consideration that we would make in doing our purchases. Is there any technology coming, particularly on the fountain side when regulations came in regulating five gallon transfer tanks?

So when those things happen, the large companies tend to pull back and say, "Let's see where this settles."

How many of us are running out and buying a car today until we see where the electric, hybrid, what is coming? So that could be a conscious or unconscious thing that's happening.

So we could have created part of this ourselves.

MR. BROOKMAN: Okay. Andrew.

MR. deLASKI: Just to follow up on a comment from Pepsi, I thought I heard you say that you thought that the standards might cause you to retire equipment early, and I don't understand that comment just because the standards only apply to new sales. So they

don't affect what you do with your existing stock.

You could refurbish the machine. You could put it back into use. That's not going to be affected by standards on new equipment that sold, manufactured.

MS. TARLEY: Yeah, that is correct, and let me just comment to your question as well as the last comment. I don't think that -- well, I can't speak for Coke obviously -- but Pepsi, I don't think we consciously or subconsciously decided to hold back due to regulations. However, what does affect very much our decisions to buy new equipment or refurbish current equipment is the various rebate options, and I could talk with PG&E as one of them.

Because of right now a lot of states and utility companies are developing in the midst of developing the rebate options, that definitely will affect what we do refurbish or what we do purchase because

everybody knows the energy efficient equipment costs money, and options to buy anything that will make the current equipment more energy efficient also costs a lot of money, and you've already heard a lot of comments about the current economic situation and the payback on the products.

MR. BROOKMAN: Please. Use the microphone and say your name for the record.

MR. CHASSEROT: My name is Marc Chasserot from shecco.

I just had a question regarding shipments. Has anyone looked into the new wave of, you know, vending machines working with hydrocarbons and CO as a refrigerant, you know, and what impact that will have on shipments in the future?

Because new technologies are coming in the market and there are lots of others working with this around the world as well, and they're coming to the U.S. I don't know if anyone has looked at that.

Thank you.

MS. TARLEY: Well, Nina Tarley, Pepsi Co.

Pepsi did install several CO2 vending machines in Washington. Actually some of them you probably can see across the street.

As far as the energy consumption if that's the question, we don't think that CO2 will save a lot of energy. We don't think the hydrocarbons either will save a lot of energy. They are wonderful, new refrigerants. Pepsi Co. is very, very much interested in pursuing those options, but I don't know if that will have any significant effect on the energy consumption.

MR. BROOKMAN: Thank you. Thank you.

Trent.

MR. ROTH: Trent Roth, Dixie-Narco.

I agree with what Nina just said.

We are experimenting with other refrigerants. We did not see energy efficiency of CO_2 anywhere near what we've already accomplished in 134(a), and to kind of argue with what Greenpeace got into last time was the fact that they challenged our carbon footprint because actually it was a big deal and we use a lot less carbon footprint when we can get a 134(a).

So we know it's out there. We're aware of it. We're not just a U.S. based company. We do stuff globally, and right now it does not seem to be the way to go.

What would drive that will be the appliance industry, quite frankly. If you start building, you know, millions of household refrigerators using CO_2 the resources from the manufacturers of compressors, then that industry may change, but the vending industry is not large enough to drive that change with CO_2. Then it would be the appliance industry. So right now we

need to wait for that wind to change to really drive efficiencies.

MR. BROOKMAN: Marc, follow-on.

MR. CHASSEROT: Yeah, just a few points. I mean, I can submit some presentations in time for the deadline, but I have presentations from Coke over the last year or show showing that, for example, CO vending machines are much more efficient than current technology.

MR. BROOKMAN: Okay. Well, let's hear from Coke.

MR. CHASSEROT: But that's not the purpose of this meeting.

MR. BROOKMAN: Sure.

MR. CHASSEROT: We're not talking about energy efficiencies, but just to highlight that.

MR. BROOKMAN: I'm sure the Department would welcome submissions, but let's hear from Coke. Steve Cousins.

MR. COUSINS: Nina and Trent are

right. CO_2, actually you're all right. It depends on the conditions by which we're operating with CO_2. We're operating transcritical CO_2. We don't have evaporators. We have gas coolers, and what's happening is that the efficiencies go haywire from our testing somewhere around 82 degrees Fahrenheit.

So if the operating environment ambient is higher than 82 degrees Fahrenheit, CO_2 is significantly less efficient than 134(a). The cooler the ambient, the more efficient it becomes.

So operating at what we consider to be 75 degrees Fahrenheit, it can be more efficient. But Trent made a very good point, which is the availability of the pumps that can operate at the right capacity for the efficiencies that we're looking for, and today there is, at least for the North America power grid, there's very small commercial availability, and because of that you don't

have the -- in a practical sense you don't have the efficiency with CO2 commercially available that you have with 133.

Theoretically, it can be done, but the commercial base is not there.

MR. BROOKMAN: Okay. Yes, go ahead. Marc.

MR. CHASSEROT: Well, I can send some information that would maybe disagree to a certain extent with what's just been said, but I mean, we work with different companies in Japan and in Europe as well. The oldest ones like Sanyo and Embraco, I know not European, and Danfoss, and they are basically telling us, "We're just waiting for those orders from Pepsi and Coke." Their technology is ready.

But that's maybe not the purpose of this meeting, but just so that you know.

MR. BROOKMAN: I'm sure they heard you though.

MR. CHASSEROT: And one other

point, can I make one final point?

MR. BROOKMAN: Yes, please.

MR. CHASSEROT: In Japan, for example, this is a market. This is already commercial this year, the vending machines. They're already selling close to 100,000 units in Japan alone right now. So I mean, this is a technology that's already existing.

I know that Japan is slightly different from the U.S., but still it's just for you to know.

MR. BROOKMAN: Let me go to Steve first, Nina. Steve Cousins.

MR. COUSINS: All of the companies you mentioned don't make CO_2 systems for the North America power grid. None of them do.

MR. CHASSEROT: I'm sorry. I didn't --

MR. COUSINS: None of those companies you mentioned make CO_2 compressors for 115 volt, 60 hertz, which is for North Americans. They're building 220/50, 90/50.

They're building these for other power grids, not for North America.

So what I said a moment ago is theoretically CO_2 can be more efficient in a very practical sense. It's not commercial here in North America where we can use it.

And as Trent mentioned a moment ago, the commercial proposition is not there yet. If domestic goes into that front, then it becomes available to us on the commercial side, but it's just not commercially there right now.

MR. BROOKMAN: Let's go to Nina and then over to Glen.

MS. TARLEY: I do agree with my distinguished colleague. One point of clarification I would like to make.

In three simple you are correct. CO_2, depending on the temperature, could potentially be slightly more energy efficient, but we're not comparing apples to apples here. I want to make very clear when you develop a

new piece of equipment, be the glass front versus back then or your CO_2 machine, you use brand new compressor. You use brand new, most efficient motors. The whole system in itself is more efficient.

That's why some of the glass from the vendors consume less energy than standard, not because glass front consumes less energy. Because the system is more energy efficient.

And the same with CO_2. We develop brand new compressors. We develop brand new systems that allows us the best air flow. It is that way we are able to save some energy on the CO_2 vending machine versus the current R-134(a).

But it's not basically because CO_2 is more energy efficient; because the system itself is more energy efficient.

MR. BROOKMAN: Okay. Thank you.

Glen.

MR. SELFRIDGE: Only one comment in passing. Hydrocarbons were also mentioned.

It's the same type of an issue in North America in terms of regulatory. People don't want refrigerators at the moment; it's illegal actually to build them that way by using a hydrocarbon refrigerant. This may change over time.

Again, it would be people like the GEs of the world or the . This is not Europe. We have a completely different set of codes, standards, opinions on safety as compared with Europe and the rest of the world. So that is not something we can assume.

MR. BROOKMAN: Okay. Thank you.

So in a little bit we're going to take a break just so you're knowing that we will do that. This has been a very productive conversation, and I really appreciate everybody speaking up and contributing all of this information, all of this knowledge to the Department.

So I'm going to return to the slides, and then we'll see where we stand

after one or two more slides.

Mike.

MR. SCOTT: Okay. I have one more detail I want to nail down. Sorry about this.

That final bullet on Slide 24, we assumed that the side distribution was going to be 75 percent medium, 25 percent large, zero percent small. That's actually a reasonably important assumption for the downstream analyses, the net present value analysis and so on.

Did we get it right?

MR. BROOKMAN: What do you think? Yeah, Trent.

MR. ROTH: Can you define the -- I'm just looking for it -- can you define please what large and small is?

MR. SCOTT: I think we can get some help from Sam on that.

MR. ROTH: Sure.

MR. JASINSKI: So in terms of refrigerated volume for Class A, a small

machine would have 19 cubic feet. Medium would be 31.

MR. SCOTT: No, that's from the A number.

MR. JASINSKI: Oh, sorry. I'll give you the updated one. Seventeen for small; 22 cubic feet for medium; and 34 cubic feet for a large. That's Class A.

Class B would be 17 for a small, 22 for a medium, and 26 for a large. I also have can capacities if you'd like those.

MR. BROOKMAN: So, Sriram, follow-on?

MR. SOMASUNDARAM: Yeah. That's in the Table IV-1 on page 26026, vendable capacity as well as the refrigerated volume?

PARTICIPANT: Zero, two, eight.

MR. SOMASUNDARAM: Zero, two, eight, yeah. Top of the page 2602.

MR. BROOKMAN: So I can read those numbers back again if you want me to. Have you got them?

Okay. So then Mike is asking you for whether these distributions, whether they are appropriate or not, 75 percent medium, 25 percent large, zero percent small for both Class A and B.

Zero is too small? Yeah, there will be some shipments that are small, yeah.

MR. SCOTT: Do you want to put a number on it? Five percent, 10 percent?

MR. ROTH: I guess if I look at the manufacturers, but I don't think any falls in small. I don't think there's anything else --

MS. TARLEY: No, I don't think 17 exists.

MR. COUSINS: I'm okay with those numbers.

MS. TARLEY: Yeah, but why define a category which doesn't exist? We don't have anything 17.

MR. BROOKMAN: Seventeen cubic doesn't exist.

MS. TARLEY: No.

MR. BROOKMAN: Oh, I see. What would be the smallest?

MS. TARLEY: I think 19 or 20 probably would be.

MR. BROOKMAN: Okay. So then there's a reason why it's zero.

MS. TARLEY: All right.

(Laughter.)

MS. TARLEY: That's right.

MR. BROOKMAN: Because it doesn't exist, right?

MS. TARLEY: In Category A.

MR. BROOKMAN: Yeah, right.

MR. SELFRIDGE: I think as I recall there is one.

(Simultaneous conversation and laughter.)

MR. BROOKMAN: Okay. So we've heard from Steve. Steve thinks the numbers are okay. Other comments on the numbers? Glen, go ahead. Glen, we didn't hear you.

I'm sorry.

MR. SELFRIDGE: Nothing. A Class B machine, a very small machine does get down into that.

MS. TARLEY: Yes, correct, but not in Class A.

MR. BROOKMAN: Okay, and also a very small number?

MR. SELFRIDGE: Very small numbers.

MR. SCOTT: One percent, five percent?

MR. ROTH: Are we saying 25 percent in the large category?

MR. SCOTT: Yes.

MR. ROTH: That may be higher. I mean, ours is the large category. So I don't know. It could be higher than that.

MR. SCOTT: Okay. I'm trying to be really clear about this. Class A machines, we've got zero, 75, 25 as we go up. What should the distribution be?

MR. BROOKMAN: 60/40?

MR. ROTH: 60/40? I don't know.

MR. BROOKMAN: 60 medium, 40 large?

MR. ROTH: 60/40.

MR. SCOTT: Okay. What about B?

(Pause.)

MR. BROOKMAN: So there's still time to receive written comments on this matter, right?

MR. SCOTT: That's a good idea.

MR. BROOKMAN: Yeah.

MR. SCOTT: Because it drives so much of the downstream analysis, early would be really good on comments about that.

MR. BROOKMAN: Okay, right.

MR. ROTH: This is Trent.

I would recommend that we use NAMA as maybe somebody that could filter out what we sell so that maybe as manufacturers we could get a third party and have them compile it. We could -- somehow they could compile it

and then we could get back to what they --

MR. BROOKMAN: Is there a representative from NAMA in the room?

MR. MONROE: I'll ask.

MR. BROOKMAN: You'll ask?

MR. MONROE: It will be up to the manufacturer, I guess, to give us this information.

MR. BROOKMAN: Did you hear what Mike said? This drives a whole bunch of important analysis and they need it quickly. Okay? Good.

Yes, I see some Navigant folks wanting to speak up. Please say your name.

MR. MILLARD: Yeah, Matt Millard.

It would also be very helpful if we could have the volumes attached to the shipment estimations because there's a lot of uncertainty as far as what some people consider --

MR. COUSINS: You can forget about that.

MR. MILLARD: -- what some people consider small and medium. So just saying that small is a certain percentage and medium is --

MR. BROOKMAN: But if they aggregate it they can't do that?

MR. McGARRAH: There's only two buyers.

MR. BROOKMAN: Okay, yeah.

MR. ROTH: You're talking cubic volume, not --

MR. MILLARD: Right, right, cubic volume. Refrigerated volume.

MR. ROTH: We're talking about refrigerated volume.

MR. BROOKMAN: Thanks for clarifying that.

MR. MILLARD: Sorry.

MR. BROOKMAN: Go ahead.

MR. SOMASUNDARAM: My comment was going to be we have asked NAMA for those data since the ANOPR meeting, and we haven't got

anything from the industry. So I just would put that word of caution.

MR. BROOKMAN: Yes. So would you say your name for the record?

MR. MONROE: Ned Monroe.

MR. BROOKMAN: Ned Monroe. Thank you, Ned.

So appreciate your efforts to try to get that done for the Department.

Bob.

MR. McGARRAH: Let me just comment on that. There's two people that are buying 99 percent of the machines. So they give their numbers anonymously to NAMA and they extrapolate their number and they know what the other guy is buying. It ain't going to happen. They're not going to give you the number.

MR. BROOKMAN: Okay. So that's good to know.

MR. McGARRAH: That's like telling your market share behind the table. It's a

very competitive industry. We fight all the time as an industry in a friendly way, and it's just numbers that I can't believe them sharing because they're the two major buyers.

MR. BROOKMAN: Trent, go ahead.

MR. ROTH: This is Trent, Dixie-Narco.

I guess I might even ask the Department of Justice here, too, but I believe it's a minimum of three. There are three manufacturers. There's Vendo, Royal and us are supplying numbers. They should be able to show aggregate market share or aggregate numbers based on that.

It has always been my understanding you had three manufacturers. You have to get at least three in order to be able to share that.

MR. BROOKMAN: Okay

MR. SCOTT: This is Mike Scott again, and just to be clear, we're not asking for shipments volumes at all. We're asking

for distribution across size classes here, percentage, not numbers.

MR. MILLARD: Right. This is Matt Millard again.

I was referring more to refrigerated volume because what some people may consider a small machine other may not.

MR. BROOKMAN: Okay. So I think we have cleared this up now. Let's do the final slide and then we're going to take a break. On approach.

MR. SCOTT: Okay, on approach, and we're going to be talking -- actually this would be a really good place to break because this is the approach for the national energy savings calculation.

MR. BROOKMAN: You want to break now?

MR. SCOTT: We should do the TSLs first. So I think this would be a good place to break.

MR. BROOKMAN: Okay. So let's

take a break. It's now 11 o'clock on the nose.

I think we're going to extend the break for 20 minutes in case those of you want to go halfway to the Capitol for coffee. Really, the most convenient place is closed downstairs. If you want to get coffee, you need to go to the main cafeteria, which is downstairs and about a half a block that way.

So let's try and resume at 11:20.

Do you have a question or comment?

MR. HORNQUIST: Just a quick question. This is Edwin Hornquist, Southern Cal. Edison.

I was just noticing that the refrigerated volume referred to here is -- well, the title is "Refrigerated Volume." In the class fee the refrigerated volume is, as I understand it, a compartment within this. Is that the entire system?

PARTICIPANTS: No.

MR. BROOKMAN: I'll tell you what.

Maybe you could just ask on the break. Let's go to a break and then if we need to take this back up when we resume we will.

Okay. Can you just consult with the Navigant folks?

MR. HORNQUIST: Yeah.

MR. BROOKMAN: Yeah. We'll resume at 11:20 right here.

(Whereupon, the foregoing matter went off the record at 11:03 a.m. and went back on the record at 11:19 a.m.)

MR. BROOKMAN: Let's start.

Let me start off on behalf of the . I don't work for the Department, but we're trying to get them a good research, and so let me start off on behalf of the Department saying thanks for that conversation we had prior to the break. I thought that was very, very useful. I appreciate everybody speaking up and saying what they know to be the issues. That's very helpful to the Department.

So we're going to then proceed.

Edwin, did you get your question answered?

MR. HORNQUIST: Well, it raised other questions. Never mind. So I just want to understand what the refrigerated compartment within the Class B machines represents. Is that the refrigerated volume that the refrigeration cites to, or is it the entire volume where the entire product, even the product that is not refrigerated or presumably not refrigerated in my mind, is assumed to be?

MR. ROTH: This is Trent.

MR. BROOKMAN: Thanks, Trent.

MR. ROTH: I'll try to answer that one. I'll take technical help if I get out of line.

We refer to the volume as the entire volume within that cabinet. That is the volume that is being cooled. Now it is slightly different. We direct all the air flow to the bottom one-third of the cabinet. So we're cooling those cans in the bottom one-

third, but there's transfer of the cold air because of the stacking, what we call stack. We literally take -- I'll get more exact later -- but for instance, our 504 Dixie-Narco stack unit, we stack 504 cans into eight columns -- seven columns straight up and down. So we're directing the air flow to the bottom one-third. The whole cabinet is refrigerated because you're going to get transfer of cold air through conduction from the cold cans.

You are cooling all of those cans. The ones at the bottom are kept at 36 degrees, plus or minus one degree, as stated in the ASHRAE standard. The upper cans may reach 50 degrees or somewhere in there, but they still are being cooled because as those get hot, you know, in the environment, they're still going to require or steal cold are from those cold cans on the bottom third, but the bottom itself is the entire cabinet because that is, in fact, refrigerated. It's just how you're directing the air flow.

So the cabinets are all refrigerated. We're just focusing the air.

Does that help?

MR. HORNQUIST: Yes, absolutely. So the question would be if the delta T between the temperature that you're cooling one-third of the product is lower or higher than the delta T for two-thirds of the product, because the refrigeration sizing obviously is taken into consideration --

MR. ROTH: Refrigeration sizing has more to do when you talk about this with the cool-down requirements, and I'll use specifically Coke since they have the toughest cool-down requirements, but the size of our compressor is more or less based upon not keeping that product at 36 degrees plus or minus one, but how fast can we cool the entire product down and let's put in more, and that's really driving what our size of our compressor is, maintaining product at 36 degrees.

MR. BROOKMAN: And that's

something they specify for different classes of --

MR. ROTH: That's specifies as a requirement, a test requirement, for pull-downs.

MR. HORNQUIST: So when you take it from something like 70 or something degrees to --

MR. ROTH: What temperature do we take it from? Seventy-something?

MR. COUSINS: Condition C currently in Coke? It's actually full reload recovery requirement that drives the refrigeration load. So --

PARTICIPANT: Ninety.

MR. COUSINS: -- yeah, that's what we consider at the moment, but I guess to elaborate on that driver, based on how we do business, based on how we do business and when a machine gets visited and reloaded and how we set up full service vending for the amount of packages that need to be restocked, we have a

requirement that we want the machine to be in business at the first peak purchase period after the reload, and that drives our standard.

So that the temperature and the time requirement which forces these guys to size the equipment a certain way is based on that?

MR. HORNQUIST: I'm curious. What's the time that you require? Can you tell me that?

MR. COUSINS: No, I can't.

(Laughter.)

MR. BROOKMAN: Okay. Well, thank you. That was useful.

So now we'll proceed with Sriram.

MR. SOMASUNDARAM: Right. Sriram Somasundaram, Pacific Northwest National Laboratory.

A slight reorder of slides. We stopped at , and I'll have Mike Scott come back up after I talk about the next two

slides, 28 and 29, and then he'll tell you about the approach that we took to do the NPV analysis and then report the results of it.

The reason we thought this might be more useful for the discussion here is that we assess the NPV, the net present value, or the national energy savings analysis impacts, only on the TSLs that we pick at this stage of the analysis.

So we have to first pick the TSLs of the standard levels for which the analysis will be continued and report the results for, and the way we pick those, if some of you remember, the ANOPR analysis we reported what were called the candidate standard levels. There were a few standard levels that we had decided would form the basis of this step of the analysis at the end of the ANOPR analysis.

And so if we go back to that step and then we say, "Okay. What levels still make sense to pursue for the NOPR analysis?" and the methodology used to select these trial

standard levels at this stage are that we pick the most energy efficient level, the Max Tech level as sort of the end of the range. So the TSL-7 or the TSL-6 as the case may be, in fact, is the Max Tech level.

Then we also pick some intermediate levels between that and the baseline. The baseline in this case is the ENERGY STAR Tier 1 that went into effect or something close to that is the baseline level, which is what all the energy savings get compared to.

So in between these two extremes, we picked the efficiency levels that either have a lowest life cycle cost or a payback period of three years or less, efficiency levels with some noteworthy technologies, for example, like the LED lighting or a condenser motor switch technology from PSC motor to an ECM motor, for example, would be an example of a noteworthy technology.

And then if we still have some

gaps between those efficiency levels, we will pick some intermediate levels to fill the gaps that may or may not have a combination of technologies that result in those energy consumption levels.

So with that introduction to the selection process, we came up with seven TSLs for Class A beyond the baseline and six TSLs for Class B beyond the baseline.

And having picked an energy consumption level for each of those TSLs, we then developed correlations as a function of refrigerated volume for medium and large size machines using the two point lines or drew a line across those two points for both Class A and Class B, and that's how we came up with these correlations for MDEC, which is maximum daily energy consumption as a function of the volume for Class A and Class B.

As you can see, even though, for example, we call it the TSL-5 for both Class A and Class B, but as you can see, the levels

are not the same. The energy consumption will not be the same because you see the coefficients will be and the intercept values are different. So please remember that.

So having set these, having picked these trial standard levels, Michael will now describe how we assess the impacts of each of those levels.

MR. BROOKMAN: And fortunately for your purposes, both of these slides are on the same open page. So you can refer back and forth.

MR. SCOTT: Good plan.

MR. BROOKMAN: That was well done.

MR. SOMASUNDARAM: So let's go back to 26.

MR. BROOKMAN: The approach. Mike.

MR. SCOTT: Okay. With that as an introduction, what we then did was estimate the national energy savings and the national impact analysis present value of savings for

those TSL levels, and one of the things that we want you to note is that the national energy savings are calculated for that 30-year period that I indicated earlier, plus the national present value by the convention that the Department uses is that we count the present value of the economic savings from all equipment purchased during the 30-year period so that 2012 to 2057 actually includes the lifetime of everything purchased in 2042 as well as everything before then.

We then came up with a base case for the national energy standard or national energy savings and national impact analysis, and to do that we had to make an assumption or series of assumptions about what would have been shipped in the absence of the standards, and as originally we had a fairly complicated way of estimating what those efficiency levels would be that the market generated, we were told at the ANOPR stage that, no, it's really a much simpler problem than that. All you

have to remember is that there are two big purchasers and some smaller purchasers, and they essentially have wanted TSL -- sorry -- trial standard level -- trial standard level? – ENERGY STAR level Tier 1, which is our Level 1 in this diagram, since it was available, since ENERGY STAR went into effect.

And then by the year 2012 just about everything that would be purchased by the larger purchasers anyway would be Tier 2, and that roughly is equivalent to Level 2 for Class A equipment and it's Level 3 for a Class B equipment.

We did allow for some purchases in between Tier 1 and Tier 2, but it's a relatively small amount. So essentially we've got a 10/90 split for the unregulated market.

Then when standards are imposed as we show in the third bullet on this slide, everything below the level of the standard gets rolled up to the standard level. So, for example, with no standard with a medium

equipment, we would have a ten percent at Level 1, 90 percent at Level 2. But then with a Level 4 standard it would all be Level 4 or higher.

There was no indication that there would be any equipment purchased above whatever the maximum level was for ENERGY STAR or, alternatively, the equipment purchased under the standard. So Levels 5 through 8 were not affected by the standard unless the standard is set at that level.

Okay. So once a standard is in place, then the old equipment, the stock of the equipment goes out of the inventory according to its base case efficiency mix, that or actually there's equipment that's older than that that's still less efficient according to the base efficiency mix, and then new equipment is sold under the standard to replace the equipment according to the new efficiency mix.

And then we simply keep track of

all of that using national average customer prices for the equipment, annual energy prices and annual repair and maintenance captured from the LCC analysis. And that's all calculated then over the period under which we're working here.

So then flipping over to Slide 30, the net present value results, for Class A equipment the standard that the Department arrived at look at net present values and the other features of the various trial standard levels.

TSL-6 was the level chosen for this analysis, and it provided a maximum NPV of $0.105 billion at a seven percent discount rate, roughly double that at the three percent discount rate, and all trial standard levels lower than TSL-7 showed a positive NPV.

For Class B equipment, TSL-3 provided a net present value of essentially zero at the seven percent discount rate. All trial standard levels lower than TSL-4 had a

positive NPV, but everything TSL-4 and above did not.

I guess this is the point at which we can either answer questions about the NPV analysis or alternatively the issue on which DOE seeks comments, specifically on the trial standard Level 6 and 3, respectively.

MR. BROOKMAN: Well, let's see if there are any questions on the foregoing slides. On the approach slide, the selection of trial standard levels, and the matrix, the trial standard levels listed for Class A and B, and also for 30, NPV results. Questions, comments on those? That's quite a lot of content there. Bob.

MR. McGARRAH: I'm a little confused here. Current machines and machines purchase by Coke and Pepsi since 19 --

MR. BROOKMAN: Bob, get closer to that mic.

MR. McGARRAH: Bob McGarrah.

Current machines purchased by Coke

and Pepsi and purchase by them probably since 2003 meet ENERGY STAR Tier 1. Many of them meet ENERGY STAR Tier 2, certainly the ones in the past several years. And I'm trying to understand how the set level --

MR. SCOTT: How the analysis --

MR. McGARRAH: -- the set level that you're going to establish relates to ENERGY STAR Tier 2.

MR. SCOTT: Okay. Well, for A Class machines, TSL-6 is more efficient than ENERGY STAR Tier 2, which is, I think Level 2; is that right?

MS. TARLEY: Can you tell what percentage? When you say more efficient, by what percent?

MR. SCOTT: We're talking kilowatt hours per day.

MR. LLENZA: So it's like 30 percent?

MR. SCOTT: Oh, I'm sorry. You wanted to know the percentage?

MS. TARLEY: Yes.

MR. LLENZA: It's about 30, 31 percent, something like that.

MS. TARLEY: Thirty-one percent? Thank you.

MR. BROOKMAN: We'll check out that.

MR. SCOTT: He's looking. Just a minute.

MS. TARLEY: I calculate around 20.

MR. BROOKMAN: So, Nina, that last comment, say it again. You calculate it's about 20?

MS. TARLEY: That's my calculations show, but --

MR. BROOKMAN: I think Trent also wanted to chime in.

MR. ROTH: We calculated -- this is Trent Roth -- we calculated 20 percent reduction. We went 20 percent for Tier 1 and Tier 2. It looks like we're going 20 percent

for Tier 2 to the schedule.

MR. SCOTT: Oh, okay.

MR. ROTH: So from Tier 1 it would be greater, but it looks like 20 percent increments as you went down, and this is a percent decline.

MS. TARLEY: For Class A.

MR. ROTH: For Class A.

MS. TARLEY: Class B it's higher.

MR. BROOKMAN: And are those increments, they're consistent?

MR. ROTH: Yeah, they are consistent. In Tier 1, energy is higher in 2004. 2007 was about a 20 percent level.

MR. BROOKMAN: So then, Sam, having looked at the data, for the record, what--

MR. SCOTT: We're still getting one more number.

MR. BROOKMAN: Okay. Come to a conclusion. I'm coming back to you.

MR. SCOTT: This is the advantage

of paper and pencil, the old school way.

MR. JASINSKI: This is Sam Jasinski from Navigant.

Our calculations show that for Class A the proposed TSL-6 is roughly 30 percent more efficient than ENERGY STAR Tier 2 and for Class B, the proposed TSL-3 is roughly five percent more efficient than ENERGY STAR Tier 2.

MR. BROOKMAN: I see, Nina, you're shaking your head.

MS. TARLEY: Yeah, my number won't be definitely much higher.

MR. BROOKMAN: So maybe they'll continue to do their calculations over here and I'll return to Bob. You were in the middle.

MR. McGARRAH: I was just trying to put a dimension on this.

MR. JASINSKI: Well, as a clarification, we did it for the medium size class in each class.

MR. BROOKMAN: Okay. So pardon me, Bob. Let me continue with this. Trent.

MR. ROTH: This is Trent, Dixie-Narco.

It's just important to note that you're not going to get an exact translation to those.

MR. SCOTT: Right.

MR. ROTH: We switched from can capacity to cubic capacity. So although I can show you where the formulas seem to line up, and we'll do that a little bit later, but it does change.

Also, when you get to Class B -- I know we're only talking Class A -- Class B, you're going to get a significant difference because we're going from 90 degrees, 65 percent relative humidity, to 75/45. So there you really are not going to compare apples to apples at all.

But in the Class A one, you need to understand that the variables will change

slightly by model, by manufacturer and how much we're coming down because the can capacity and cubic capacity are not in direct correlation with each other.

So we will get some variance on that, but that's all right.

MR. BROOKMAN: Okay.

MR. ROTH: And that's the way it is.

MR. BROOKMAN: Okay. Thanks for that clarification.

Do you wish to say anything more now, Nina?

MS. TARLEY: No, no.

MR. BROOKMAN: You all set? Okay, okay. Well, they'll continue to take a peak at that.

Bob.

MR. McGARRAH: Tell me what I'm saying wrong. The current standard that you're proposing will be between 20 and 31 percent higher than ENERGY STAR Tier 2 for

Class A machines.

MS. TARLEY: Lower.

MR. JASINSKI: More efficient.

MR. McGARRAH: More efficient.

MR. JASINSKI: Yes.

MR. McGARRAH: And for Class B machines, it will be five percent more efficient than ENERGY STAR Tier 2.

MR. JASINSKI: Yes.

MR. MILLARD: This is Matt Millard again.

As Trent said, it's more difficult for me to develop that relationship because we estimated what the ENERGY STAR level would be if it dropped down to 75 degrees.

MR. JASINSKI: For clarification, this is Sam Jasinski; for clarification, ENERGY STAR ratings are based on a 90 degree Fahrenheit ambient temperature test for Class B machines, and the Department of Energy test procedure mandates a 75 degree ambient temperature.

MR. McGARRAH: I want to simplify it so I can explain it to people where it is from where we were at ENERGY STAR II to where we're going to be with this new regulation, and I think you did a pretty good job of saying -- I don't mind a range. A range is good -- the current proposed standard will be 20 to 31 percent greater for Class A machines than ENERGY STAR Tier 2, and one to five percent greater, meaning requiring more efficiency, than ENERGY STAR Tier 2 for B machines.

MR. JASINSKI: That's correct.

MR. McGARRAH: Could we just write that down?

MR. BROOKMAN: You don't think it's written down somewhere?

MR. McGARRAH: No. I'm having trouble translating this.

MR. BROOKMAN: I see.

MR. McGARRAH: No, to be honest with you.

MR. BROOKMAN: Okay. Then we'll mull on that point. Are there other questions and comments then on this series of slides? There's a lot of content here.

Yes, Trent.

MR. ROTH: It might help you, Bob. This is Trent from Dixie-Narco.

I'll give you a specific example so you will maybe -- these are large glass. We have a 405 can capacity at Tier 2 levels. We have a threshold of 5.56 kilowatts an hour for a daily hit. Under the new regulations in Class A, based on our cubic capacity, we have a new threshold that we have to hit of 4.48 kilowatts per day. So that's roughly a 20 percent reduction.

MR. McGARRAH: From six to four.

MR. ROTH: From 5.56 to 4.48. So that's the best translation I can give you --

MR. McGARRAH: No, that's good. That's exactly --

MR. ROTH: -- all our models, but

roughly in Class A it represents to us, Dixie-Narco, approximately 20 percent.

MR. McGARRAH: I think for me it's important to dimensionalize it so I can talk to the average folks and say, "This is what you're looking at. If you go to ENERGY STAR Tier 2, you're going to have to get this much more efficient with the new machine." That's all.

MR. ROTH: The threshold is that much more. There are those of us that are well beyond that already.

MR. McGARRAH: Yeah.

MR. BROOKMAN: Okay. Thank you. Thanks for that illustration. That was helpful.

MR. McGARRAH: Very.

MR. BROOKMAN: Now, any additions on these slides? Because we're about to move to wanting to seek specific comment on Slide 30 and then 31.

Andrew, did you have something?

MR. SELFRIDGE: I had.

MR. BROOKMAN: You had something, Glen. Thank you. I left somebody out.

MR. SELFRIDGE: And what I had basically was, number one, I had mentioned this before. California Energy Commission on their public site is required by California Law of 75 degrees and 90 degree results by model number for every machine that's legal to sell in the State of California, public information, you can use it.

Secondly, if you look at our list, there are no energy management systems that are used during the ASHRAE test. Okay? To come up with those numbers, as Trent mentioned, a year ago others do that and it's perfectly legitimate. Okay?

But if you're looking at something like LED lighting and were to pick Trent's number, the lighting is already backed out of it similar to what I had talked about with our Super T8s.

So be careful on your calculations of baseline because you've got some errors here that are becoming more and more apparent as you move through on Class A.

MR. JASINSKI: Sam Jasinski.

Just for the record, those California Energy Commission numbers were used in our analysis. They can be -- you can find them in Chapter 3 of the TSD.

MR. BROOKMAN: Okay. Thank you. Thank you for that.

Andrew.

MR. deLASKI: I do have a comment. Mike, I thought I heard you say, and this is reaching back a little bit -- correct me if I'm wrong -- that the TSL chose for a Class B TSL-3 was the entire levels were NPV negative.

MR. SCOTT: That's correct.

MR. deLASKI: And I would note that that's true at the seven percent discount rate, but not true at the three percent discount rate.

MR. SCOTT: That's also correct.

MR. deLASKI: And that there's no reason that one should be predisposed to emphasize one or the other. I would argue that the actual cost of capital the Department chose for the purchase of the machine was lower than seven percent so that the three percent rate should be considered in the Department's analysis and is required to be considered by OMB.

I also would note that the mean LCC is positive at TSL-4. So that not only is those two economic indicators are at a somewhat higher level and that your presentation at the seven percent rate, you know, there's no reason you have to start with just that one rate.

MR. SCOTT: Just one point about the LCC analysis. I'd have to look back at it myself to be sure of this, but note that if you're bringing LCC into the calculations by TSL level, one thing the Department likes to

look at is the proportion of potential purchasers of the machine who show a net gain or show a net loss on an LCC basis.

Recall that I said we do a lot of this on a distributed basis with probability distributions, and so we do get some scatter.

MR. deLASKI: I'm looking at the scatter right here, 80 percent, and that's it.

MR. SCOTT: Okay.

MR. deLASKI: So that to me points to pretty strong evidence that TSL-4 is at a higher level as being an appropriate level for those based on basically all of the economic criteria except this.

MR. BROOKMAN: You've anticipated where we're going with the agenda. You can see on Slide 31 that the Department of Energy seeks comments specifically on proposed trial standard level TSL-6 for Class A, TSL-3 for Class B. So let's hear any additional comments on those.

MR. LLENZA: I just wanted to make

a comment.

MR. BROOKMAN: Charles Llenza.

MR. LLENZA: Any of our numbers that you may have some kind of disagreements like in the trending, we would like your comments specifically addressing, if we've made some errors in your opinion, because what we would like to do is look at them and if we've made an error we would like to correct them for the final.

MR. BROOKMAN: Right. Steve.

MR. COUSINS: Right, and that's on our agenda for this afternoon, isn't it? I'm looking at the discussion at 1:45 on the TSL and I guess we can provide written comment on.

MR. BROOKMAN: Right, right. So we're ahead of schedule.

(Laughter.)

MR. COUSINS: Are you saying we can discuss that now?

MR. BROOKMAN: Yes.

MR. LLENZA: Yes, we can.

MR. BROOKMAN: Okay. Steve Cousins, go ahead.

MR. COUSINS: Well, you know, I heard the comment. I think Sam made it that in large measure we refer to California energy numbers and other publicly available numbers to help establish the relationships in the TSLs.

I would submit that those numbers that you're looking at don't represent an apples-to-apples comparison, particularly because, well, one of the reasons you elaborated on this morning, which was the light level between an A and a B are dramatically different.

Also, the test methods that's used, ASHRAE 32.1, doesn't reflect an apple-to-apple comparison between the types of machines because the ASHRAE 32.1 does not regulate or dictate the control of the operating methods for all the powered elements in the equipment. Well, lighting, for

example.

So you know, there are some drive-around temperature, but not necessarily around lighting. So what I'm cautioning us on, we have to go and take a look at it, but my caution is that some of the data that we referred to, for example, may reflect a machine with all of the powered elements operating and the data for another machine in the database may not represent it operating with all the powered elements energized.

MR. BROOKMAN: Okay. Glen, you had something?

MR. SELFRIDGE: Steve made a nicer clarification to my comment.

MR. BROOKMAN: Okay, good.

MR. ROTH: Are you talking, Steve, specifically about our ability to turn two of the three lights off during the test method in which you would have energy savings during periods of non-usage where we only turn two lights off and leave the top light illuminated

on the glass front on a Class A machine? Is that what you mean where we have power savings due to that as reflection of the way the test method is done?

MR. COUSINS: I'm going well beyond that. I'm also talking about idling condenser motors, cycling the evaporator motor at a certain period. So it's not just lighting. It's also the other motors that are involved.

MR. ROTH: But as long as it stays within the ASHRAE 32.1 and keeping product at 36 degrees plus or minus one degree and all the specifications, that's all available to be able to do as long as it does not have the ability to turn off. You can't have an operator override the system and be able to turn the system off. That's all part of saving energy, isn't it?

I can't understand why --

MR. COUSINS: Because Nina will jump up and tell you that a million control

schemes are patented. We have patents around control schemes on operating fans, and operating lights. So the availability of being able to manipulate some of these things to achieve energy benefits is not broadly available to everyone.

Here's the base of what I'm looking at here. Here's the base of what I want to communicate, and I think Glen made reference to this when we first started our discussion. If you look at the refrigeration element, if you look at the cooling element between a Type A and a Type B, yeah, intuitively and if you look at it carefully, if you look at apples to apples comparison, the heat load for an A cap is going to be large or the cooling load for an A is going to be larger than for a B.

Yet when you look at the relationships in the TSLs, the expected results is actually the reverse of that. I'm not talking about the lighting. I'm just

talking about the cooling load itself.

Light levels are driven by the end user, and the controls schemes that drive those are driven in large measure by who owns IP. So when I look at these numbers, they don't make sense to me.

MR. BROOKMAN: Trent, go ahead.

MR. COUSINS: And I think the reason why they don't make sense is because the database is not based on apples-to-apples comparisons.

MR. ROTH: When I first looked at the numbers, we heard a lot of comments and tried to understand are they correct or not? I think they make very good sense, and I'm trying to understand why, and I'll try to give you a comparison of why I think they did. I'm going to have to walk through some math equations, but it's not too hard.

When you look at a stack, we're going to use our 504 stack unit. It's our closed front, Class B machine. We used to

have a formula based on ENERGY STAR where we used can capacity which we changed to cubic capacity. Again, the only variable that changed and determines the threshold in which one of these units needs to achieve is the capacity of the machine. It used to be the can capacity and now it's the cubic capacity.

But that is the variable today that choose what threshold you have to meet.

What I tried to do is say, okay, when is the comparison to a stack unit now that we changed this in comparison to the glass. When I look up 504 or our stack unit with 504 cans, it has very high can capacities. So the pressure will be pretty high in the Tier 2 ENERGY STAR levels.

And when you look at a cubic capacity comparison compared to the numbers that we have in a glass front, it's half the capacity. So our threshold number is extremely lower because of that.

Now, I understand the argument

that we're only cooling one-third. We're not really only cooling. We're keep one-third at 36 plus or minus one degree, but the upper two-thirds of that cabinet is still pull heat through induction or pulling that heat out of there. So immediately focusing the air flow on that one piece of it, but our number is already cut substantially because --

MR. COUSINS: For your machines because of the product capacity. I mean, his machine may hold more capacity for the same size cabinet.

MR. ROTH: But then I would expect a relationship between the cubic capacity and the can capacity to slightly change. You take a larger machine. I mean, what I was trying to get at, when you use the formula and you use cubic capacity rather than the can capacity as the baseline of the formula, because we cut it in half with stack units and you're saying the argument is we're only cooling one-third which should be easier to

achieve the energy levels, that's already being done in the formula strictly because the capacity is cut down.

Our cubic capacity in the 504 is about 17 cubic feet, where our glass front is about almost 35 cubic feet. So just inherently the way the formula is written, it cuts that threshold floor down. So that's why the energy levels that we think are fair, and you add the lighting back in on top of that that we need to do from the sign face. We think the numbers are correct.

MR. BROOKMAN: Glen, please.

MR. SELFRIDGE: I want to address this to Trent. I believe, having seen both cabinets and tested both and worked with both companies --

(Laughter.)

MR. SELFRIDGE: -- Twenty-seven years, 20-something years, that you have perhaps misinterpreted the requirement for the calculation of refrigerated volume that was

accepted by this entire group at the first meeting, because your volumes are significant higher than that.

As a matter of fact, I don't think the study was provided by you particularly, but within the CSA 804 new review over the last couple of years, your people supplied test data anonymously with the volumes, and it worked out to formula that was accepted by the Canadians at this point under the new 804 standard that clearly show what everybody else happens to know to be the truth that the Type B machine is inherently going to use less energy.

MR. ROTH: I'll address that.

MR. COUSINS: Based on the data I've seen, yes.

MR. SELFRIDGE: Huh?

MR. COUSINS: Based on the data that we've seen.

MR. BROOKMAN: Steve is talking about the data, and now Trent, back to you.

MR. ROTH: I mean, we don't see that. Our glass fronts are significantly more efficient than our stack units. We've posted the EPA on large glass front 3.95 kilowatts an hour.

MR. COUSINS: Yeah, I don't deny that. They are more efficient, but that doesn't mean they use less energy because of the required cooling load.

MR. ROTH: Our glass front holds 405 cans. Our stack unit holds 504. Our glass front is significantly, I mean a kilowatt and a half less energy.

MR. COUSINS: But what I'm saying is for that same volumetric capacity there are machines that will hold more packages than your machine will hold, and there's a larger heat load as a result.

MR. BROOKMAN: But isn't that true with -- for the record I want to clarify. Trent, Steve, Trent, Steve, now back to Glen. Go ahead.

MR. SELFRIDGE: One last comment and I think I can move on. I believe that the numbers that you have published with EPA include the ASHRAE test number where you're using the automatic management system.

MR. ROTH: Trent.

That is correct. What we've done is we have three lights in our glass front. We have a top light and we have two right-hand lights. We turn those two lights off during the test method because it is factor set that if there's a period of non-usage, those lights will go off.

The lighting though, the majority of the glass fronts in the marketplace today are ours. We're going back in the period. They only had one light in there. We added two lights when we came up with our new design. So we didn't decrease the lighting to what normally was in there. We just increased the lights in our current machine today to allow similar test methods as what we do with

computer screens today. When there's non-usage, it will turn off.

So then those are included on there, but the lighting is similar to what we had in lighting a number of years ago in all of the glass fronts that we had.

MR. BROOKMAN: Glen.

MR. ROTH: But it does account towards others who are able to do that.

MR. SELFRIDGE: One last comment on that clarification. I have no disagreement with what Dixie is doing that's allowed on the 32 months period. But in the question of agreeing or disagreeing, in fact, we may have to go there.

But the point is that you take our Type A machine, pull the lights out of it entirely and it consumes three and a half kilowatt hours a day. And I think we got it rated as a 5-6 or something. So the differences in the lighting and all of this is gushing, hits around the assumptions that

might have gone into these volume calculations on the type A machine being skewed. Okay?

MR. COUSINS: Yeah, right.

MR. SELFRIDGE: Because they heard me.

MR. COUSINS: Well, yeah, that's what I said. Steve Cousins.

That's where we don't really have an apples-to-apples comparison with the numbers that have been used to develop these relationships because there's a more focused, more attention and more development on the Type A machines, and the operational schemes around it. You know, it makes me question what we have here, and I think what we would have to do, at least what I would have to do in providing comments before the written period is over which is to point where I think are the specific problems in the data set.

MR. BROOKMAN: In the comparability?

MR. COUSINS: Yeah, and how we

should address that.

MR. BROOKMAN: Okay. Trent.

MR. ROTH: This is Trent.

I just have one question. It might be directed toward Navigant Consulting or some DOE, but I don't look at these thresholds of where our equipment is today. I mean, I know where we are today. I know where we stand because you know we've done those depositions, but isn't the goal for us not to -- to include all of the equipment where we are today, accept that standard and let's move forward?

I think we've wasted three years of trying to get where we're at today. I mean, if we're just going to say that we need to do this threshold and everybody agrees we need it, everybody is happy, it all falls in with the same correct number today, then I think we wasted three years. I mean, where are we going to be three years from now? We haven't looked at a lot of things to drive

energy reduction down. We really haven't done anything seeing if you've got stacks at all or Class B. We've done very little for Class A so far.

It all comes back down to cost later on.

PARTICIPANT: Short equation.

MR. ROTH: And how much do you need to add to get it down there?

But I don't think we're looking at everything it needs today. I think it's all in the baseline, but are we really looking at where we're going to be three years from now? That's the question I have. What are these regulations based on?

MR. BROOKMAN: Do we want to -- Charles?

MR. LLENZA: This is Charles Llenza, Department of Energy.

The Department has identified a path to get there. It does not mean that the industry does not find other paths to get

there, and so what the Department is saying is that we see a path to get there and basically the industry can either use that path or provide an alternative path.

What Trent Roth is saying is true. The industry can then look at other means of getting there. We're just saying that this is one method or one avenue to get there based on what we see today.

MR. BROOKMAN: Bob.

MR. McGARRAH: With all due respect, I think the industry is just there. We're proposing over this past three or four years, the standard that's being proposed I'm hearing, the industry is either there or maybe a little beyond it, and we're not going to propose or enact this for three more years, two years, 2012.

So the industry is --

PARTICIPANT: Let's for argument purposes say that you're there. Are you there, Trent?

MR. ROTH: Class A equipment, ASHRAE 32.1, we see the stack.

MR. McGARRAH: Okay. So you're --

PARTICIPANT: The stack in the Class B equipment?

MR. ROTH: No, we don't. We have to use work in order to achieve the standard, achieve the Class B standard, and how much work would we have to do? We haven't even worked on that yet. So I don't know the answer to that question in Class B. We achieve it today on Class A.

MR. McGARRAH: That's what I was trying to relate to ENERGY STAR Tier 2, looking at ENERGY STAR Tier 2 for a long time, and have been making improvements on ENERGY STAR Tier 2 right up to today, and two years from now the standard that I'm hearing is being proposed, which is 20 to 31 percent better than ENERGY STAR Tier 2, I believe some of these folks may already be there.

So the standard two years hence

really doesn't meet the mandate of the Energy Policy and Conservation Act, which is to -- shall we all say it together? -- achieve significant energy savings. If we're there now, the proposal that we have is wide.

MR. BROOKMAN: Trent, you okay? Okay.

So any other comments specifically surrounding trial standard Level 6 for Class A and trial Standard Level 3 for Class B?

So I think we have covered that much. Let's move on with the presentation, LCC subgroup analysis.

MR. SCOTT: Okay. Well, the purpose of the subgroup analysis is to evaluate the economic impacts of standards on customer subgroups. This is people with the -- they're returning the ?? and paying the utility bills. So the impact on customer subgroups who may be disproportionately compared with the general user population, actually the original concern for this comes

out of more the residential side of the house where the concerns for people like low income purchasers of household equipment. However, we do it on the commercial side as well.

The DOE identified potentially disadvantaged businesses and we exemplified those by independent manufacturing sites that own BVMs at their sites. So think about a factory floor somewhere where somebody has actually bought the vending machines. They own them and they operate them.

These owners would experience the highest financing costs of any of the groups of potential purchasers of the machines that we were able to locate, and they also, because they pay a manufacturing facility, they're going to be typically paying an industrial energy price rather than a commercial one. They also have the lowest energy prices and therefore the lowest savings with the same energy savings.

And we used our basic LCC

spreadsheet model just for that group of people to determine the impact on that customer subgroup, sort of the worst case group, and we did find that LCC savings and the simple payback period was -- well, the LCC savings were lower and the payback periods longer for that identified customer subgroup.

However, we didn't feel that they were disproportionately impacted by the standard. It was not as good, but it wasn't radically different. That analysis is found in Chapter 12 of the TSD, and there's also some discussion of it in the NOPR.

MS. TARLEY: I have a question. For the benefit of the group, could you state what is approximate cost of energy to run a machine per day or per year? Do you know?

MR. SCOTT: I do not.

MR. BROOKMAN: Gentlemen, the total amount of energy to run a vending machine per day or year?

MS. TARLEY: Cost of the energy.

I happen to have the numbers.

(Laughter.)

MR. COUSINS: The cost you mean?

MS. TARLEY: Yes, it's the cost.

On the evidence the vending machine costs somewhere between 58 cents to 94 cents per day. That's the cost of diving the machine which per year translates to somewhere between $200 to $380 per year.

MR. SCOTT: Okay. That sounds about right to us. You're getting nods from over there at Navigant's table.

MS. TARLEY: Just so we can understand what's involved.

MR. BROOKMAN: Okay. Thank you.

Have you finished?

MR. SCOTT: Yeah, I'm finished with that one.

MR. BROOKMAN: So comments on LCC subgroup analysis? And thanks for that date.

Any additional thoughts on LCC?

It's now 1210. Manufacture impact

analysis followed by these other kinds of analyses. Do you want to break for lunch now because I think we have -- well, yeah? Do you want to break for lunch now?

I think people are starting to get hungry. Okay. So now it's 12:10. We're going to pause and take an hour for lunch. Please wear your badges in the building.

A whole bunch of us are going to head downstairs and go to the cafeteria which is across the street underneath, get on the ground floor and go down a long corridor and then back up to the floors above.

If you try and go out of the building off campus, you may have a hard time getting back here in time. So I'd like very much to encourage people to see the cafeteria. It's newly renovated. It's looking pretty good.

PARTICIPANT: Is the food any better?

MR. BROOKMAN: I don't know if the

food is any better or not, but we'll find out, won't we?

So we will resume at 1:10.

Thank you.

(Whereupon, at 12:10 p.m., the meeting was recessed for lunch, to reconvene at 1:10 p.m.)

AFTERNOON SESSION

(1:19 p.m.)

MR. BROOKMAN: Welcome back. So what's the verdict? Do you know the food has improved any? The cafeteria looks better. What do you think? Maybe the look does it all by itself.

(Laughter and simultaneous conversation.)

MR. BROOKMAN: Okay. So let the record reflect that people are generally impressed by the new cafeteria, but we're still questioning, we're still evaluating the food.

We're moving on ahead where we left off with the slides in your packet, and we are now by my count on Slide 33, manufacturing impact analysis

MR. KINGMAN: I'm Jeff Kingman from Navigant Consulting, and this is a follow-up to the ANOPR presentation where we presented some of the initial concerns of

manufacturers.

For the NOPR we continue to do that but also follow through with a full cash flow analysis to quantify the impacts on the industry.

The main point of the manufacturing impact analysis, or MIA, is to assess the impacts of energy conservation standards on the BVM manufacturers. For this DOE relies on a number of sources of information.

We rely on information provided from manufacturers and other stakeholders. Another part of the analysis is the other analyses that were completed previously like the engineering and the MIA.

Another point of the MIA is just to estimate the impacts on manufacturer's subgroups. This is separate from the LCC subgroups. The subgroup we analyzed for this NOPR is small manufacturers, and in order to determine if a manufacturer is a small

business we used the SBA definition, which included parent companies and subsidiaries. For BVM they have to have less than 500 total employees.

During the MIA process, DOE attempts to or the contractor attempts to interview any manufacturer that's interested in speaking. That includes small businesses if they are interested as well.

And the third point of the MIA is to examine the impact of cumulative regulatory burden on the industry. For this DOE looks at federal regulations and other regulations that could potentially affect the manufacturers.

In order to conduct the MIA DOE uses all available information to develop manufacturer's financial parameters and the costs of comply with the standard. These inputs are then incorporated into the government regulatory impact model, or GRIM.

The GRIM outputs cash flows for the analysis period and calculates the impacts

on the industry, which is called the industry net present value by assembling the discounted cash flows over the period. This is done for the base case, which is absent standards, and for standards cases at each of the trial standard levels.

And the differences for each TSL between the base case and standards case, INPV, is a quantitative representation of the manufacturer impacts due to standards.

Additionally, the interview process is used to refine inputs the GRIM and to develop other subanalysis, such as the subgroup analysis, cumulative regulatory burden, and the impacts on employment.

This slide is just an illustration of the phases that DOE goes through in order to conduct the MIA. Phase 1 is the part that was conducted during the ANOPR, which is when DOE uses publicly available information, such as SEC 10-K reports and annual reports for manufacturers to complete a market and

industry profile.

Phase 2 and 3 are what we conducted during the NOPR. The first big part is developing a strawman GRIM, which is using the previously available information that's available publicly and also develop an interview guide.

During Phase 3 is when DOE's contractor actually conducts the interviews to develop the other subanalyses, such as the small business impacts and the cumulative regulatory burden. And it's also used to refine some of the GRIM inputs.

And for the MIA presented in the NOPR, we used two different scenarios in order to bound the impacts on the industry. To assess the lower end of the range, we considered a preservation of gross margin percent scenario, and that, a single uniform gross margin percentage mark-up is applied across all efficiency levels and equipment classes.

In this scenario as product costs increase with efficiency, the scenario implies that the absolute dollar margin will also increase, and to assess the higher end of the range of potential impacts, DOE considered the preservation of operating profit scenario, and in this scenario DOE models manufacturer concerns about the over capacity of the industry and the inability to set some of the prices they charge our customers.

In this scenario, manufacturers spend the necessary investments required to convert the facilities to produce the standards of required equipment. Despite this effort operating profit does not change from the base case and decreases as a percentage of revenues.

The equipment and capital conversion costs necessary to reach each TSL are included in both mark-up scenarios.

And at the beginning of the presentation, DOE requested comment on a

number of issues that related to the MIA, and I think we can go back now and revisit some of those.

Should I go back in the slides?

MR. BROOKMAN: Yes, that will be fine.

MR. KINGMAN: The first issue was just any comments on the impact of industry net present value at the proposed standard levels.

The next one is what impact TSL-6 could have interested parties, including small businesses. Another one was whether or not the proposed standards risk any industry consolidation.

And a final one was how small business manufacturers will be affected due to new energy conservation standards.

MR. BROOKMAN: So there you can see a series of questions. We touched on some of these at least, I think. So maybe we could start with the first block there, industry

NPV, and comment on that.

Please, Nina.

MS. TARLEY: Nina Tarley, Pepsi Co.

Yes, the comment I want to make is just a little bit of history of the vending machine when it comes to a logical assumption. Before 2004, vending machines were energy hogs because nobody paid attention to energy. As soon as ENERGY STAR started reviews of Tier 1, there was a humongous effort and not to say that Pepsi Co. made it mandatory that all vending machines meet the Tier 1 ENERGY STAR, and they all complied. The result if I recall correctly, somewhere around 22, 23 percent energy.

Then in the middle of 2007 the ENERGY STAR introduced Tier 2, and again Pepsi Co. led the industry by mandating that all of our vending machines meet the Tier 2, and that was tough. Getting to Tier 1 was relatively easy. Getting from Tier 1 to Tier 2 was a massive effort, cost a lot of money and

energy, no pun intended.

But as a result, another 28 percent reduction in energy consumption was achieved.

MS. PINTO: Excuse me. An additional 28?

MS. TARLEY: That's correct. That's correct. That was a major, major effort between the Tier 1 to Tier 2. So overall if you compare the current model versus 2003-2004, we saved 51 percent energy. Pepsi Co. did.

So I just wanted to give this background so everybody understands that now that people are talking another 20, well, let's say, anywhere between ten to 30 percent reduction in energy consumption, we're talking about probably cost and effort.

And also not quite related, but some of you might have heard there is another nail in the coffin of the vending industry. Regulation is being discussed as we speak

about mandating nutrition labels on the vending machines that will specify the caloric effect of every single item in the vending machine. This is being discussed and we expect to -- Mike might have some more updated information, but it is going, I believe, to Congress and then to Senate for approval, which every vending machine will require to have a label stating --

MR. BROOKMAN: Not on the bottle itself, but on the actual machine?

MS. TARLEY: Correct, on the outside of the vending machine. That is correct, yes. So anyway.

MR. BROOKMAN: Okay. So that's interesting. Thanks for that history. Appreciate that.

So then you can see the specific questions that DOE would like you to comment on. Maybe we can start with why the private market has not been able to capture the energy benefits proposed.

Nina has responded to that, but that's specifically in TSL-6, and whether and to what extent parties estimate they'll be able to transfer cost of implementing TL-6 on to consumers. Maybe we could start with that one and do both of those two.

What do you thing? Bob?

MR. McGARRAH: I'll take a shot at it. I don't think you're going to be able to do it because the energy savings goes to the person that pays the electric bill. The utility programs that run programs for energy saving equipment, the incentive dollars goes to the person who pays the energy bill. The manufacturers, machine owners, the Cokes and Pepsis of the world get zero share of that savings benefit, which is the reason the machines have been energy hogs for so long, because there was nothing to benefit even the manufacturer or the machine owner. So who cares what the gas mileage is if I'm not buying the gas?

So until we can get something going there -- I shouldn't say "until" -- but when we get something going there, then these very stark, scary, under a million vending machines in the marketplace in 12 years, maybe that won't happen, but if there's a financial incentive to the machine owner and the machine manufacturer to get an energy efficient machine, and I don't say get the benefit, but share the benefit so that there's a mutual benefit to the person that pays the electric bill obviously and a benefit to the folks that run and build the machines.

MR. BROOKMAN: Steve.

MR. COUSINS: For a long time the cost increases to the system have not been transferred on to the consumer. Material cost increases, cost increases to the commodities or the products that are sold to the commodities.

I guess the point I'm making is this. Any up charge or any increased cost

because of more energy efficient technologies that are put into the machine, that cost will not be transferred over.

Historically the industry just doesn't -- we haven't had the means to actually be able to transfer cost or move cost downstream.

MR. BROOKMAN: You change your calculation about how many bottles or how much product needs to be sold and keep it profitable.

MR. COUSINS: Essentially, yes. That's what's happening, and that's one of the things that's driving less and less machines in the marketplace.

MR. BROOKMAN: Okay. Yes, Trent.

MR. ROTH: Trent Roth, Dixie-Narco.

I'm just trying to understand this. You're asking the added cost it will take us to get to TL-6, how would that be passed on to the --

MR. KINGMAN: Yeah, I think this question is asking from starting from the manufacturer down the distribution chain how those costs will be passed along.

MR. ROTH: Well, for A model, a Class A, we didn't have any additional costs in getting to that from where we were, from the last one. We didn't pass on any costs. Whatever costs there were, and I'm not sure what that was, we did not pass any costs on in Class A. We kept it at the same price to our customers.

MR. COUSINS: So there's no cost difference between Tier 1 and Tier 2 Class A.

MR. ROTH: From a Tier 2 to go into where the NOPR is from us? No.

PARTICIPANT: Somebody get that.

MR. ROTH: But that would mean how much added cost? I mean there wasn't a lot that we had to do to get to that piece. I mean, that's saying Tier 1 to Tier 2, yeah, we had to make changes.

MS. TARLEY: Yeah, that was Steve's question.

MR. ROTH: Sorry, yeah.

MR. SELFRIDGE: Actually Tier 0 to Tier 1 was fairly substantial when you consider the up charges for ECM, an operator paying for special compressors and all the other things that went into the magnetic ballast. The accelerator cost, it cost us a lot.

MR. ROTH: It did.

MR. BROOKMAN: From Tier 1 to Tier 2, and so, Glen, thank you that. I just wanted to acknowledge the last comment was from Glen.

MR. ROTH: It did cost us more. This is Trent. It did cost us. I'm just trying to understand the question.

MR. HORNQUIST: The question on the table is -- this is Edwin Hornquist -- is at the TSL level. It's not Tier 1, Tier 2. It's the incremental cost from TSL-1 through

6.

And you're saying that there is no cost?

MR. ROTH: No, I corrected myself. There is a cost because we did have to implement ECM. I was trying to understand the question. We did have to incur costs trying to get to that level.

MR. BROOKMAN: In this case TSL-6 is ENERGY STAR 2, Tier 2?

MR. KINGMAN: No, it's the baseline.

MR. BROOKMAN: It's the baseline Sorry.

MR. LLENZA: Charles Llenza. Tier 1 is the baseline. Sorry.

MR. BROOKMAN: Okay. We want to move to the question you see there at the top of the screen.

MS. PINTO: Excuse me, Doug. This is Francine Pinto.

MR. BROOKMAN: Go ahead.

MS. PINTO: I want to go back to this other point about the impacts on manufacturers. I didn't feel like I got a clear answer that I can understand.

If the TSLs that are proposed, the proposals, were to become the final rule, what is the impact on manufacturers? I just want to get that sense from you all. This will be finalized the way it is proposed. How does it impact you?

MR. ROTH: In three years?

MS. PINTO: In the three years, right.

MR. BROOKMAN: Go ahead.

MR. ROTH: Trent from Dixie-Narco.

It goes for both classes. I'm not sure what we have to do to get to Class B because we haven't tested the equipment, and I'm not sure what we have to do. I don't know an answer to that at this point.

MS. PINTO: Okay.

MR. ROTH: Class A particularly

for us, nothing. We're there.

MS. PINTO: Okay.

MR. COUSINS: Steve Cousins here, Coca-Cola.

With regard to what our system does and the impact that that has on these manufacturers is closely connected to cost because historically our available capital and the capital investment has either been fixed or is shrinking.

So even though you can achieve these numbers technologically with A, for example, you know you can hit the target, the cost implications may have some impact on the volume that we purchase.

MR. BROOKMAN: Trent.

MR. ROTH: The only question I'd say is if you're buying them today I don't know where the change is taking place. What you currently are buying today are the ones that we pushed down

MR. COUSINS: So you're assuring

me it's not going to be any cost increases over the next three years?

MR. ROTH: Not at all.

MR. COUSINS: All right. Write that down for me.

MR. ROTH: Not at all am I assuring that, but it has nothing to do with what we've done. The machine, we made a transition this year and took it to this new level. We did not have a price increase this year as a result.

MR. BROOKMAN: Glen.

MR. SELFRIDGE: Yeah. Assuming as I say Dixie-Narco has done this basically the way they said they did here on the energy management system, it's not an expensive add to the existing machine, then we can pass it on at substantially no cost provided there was no intellectual property hanging back into the background with that petition, but what that level does do to you, it leaves you with basically no lighting machine, no nothing else

to play with as you move on down the road five years from now, ten years from now as you have with any other one.

You are actually taking functional equipment and you are disclosing it. Okay? So to get to the new machine, there is going to be some cost associated with that one way or the other, perhaps not greatly huge at least in our case. But unless we would adopt the energy management system which we can do if there's no intellectual property; we could get to that Level 6.

But it's very misleading because you adopt the ENERGY STAR? It takes out a substantial component and nobody in the world knows about it, except this little room.

MR. BROOKMAN: Francine.

MS. PINTO: When you say it takes out a substantial component -- Francine Pinto -- what does that mean?

MR. SELFRIDGE: What that means is the machines have lights and if you walk up to

a machine, this is the mass run Type A machine, and the lights are off when you can't see the project.

Number two, you believe the machine is not functioning. The beverage companies lose their visibility if you want a little fancy thing.

MS. PINTO: So are you saying -- this is Francine Pinto -- that in order to get to the proposed level you have to eliminate all the lighting?

MR. SELFRIDGE: You have to eliminate the lighting for the period of the ASHRAE test.

MR. BROOKMAN: That is the manufacturer wanting to follow on.

Trent, go ahead.

MR. ROTH: I'm just trying to clarify. Currently today in our machine we have three lights in our machine, fluorescent lights. During a period it can be down one hour with a period of inactivity. Two to

three lights shut off. The top light remains illuminated.

The top light is the same lighting we've had on glass fronts prior to what came out with the BevMax 2 back in 2004. On every other glass front we ever produced out there, and I can say there's more of those out there than every other glass front made by every other manufacturer combined in the marketplace today with just one light at the top, it did not inhibit sale. It did not --

MR. SELFRIDGE: And the door light?

MR. ROTH: The doorlight, that was inside. That didn't illuminate anything. That was just for --

MR. SELFRIDGE: Merchandising.

MR. ROTH: Yeah, for merchandising, but it did not have anything to do with lighting the interior of the cabinet. It's the same lighting we have today when we go down to two lights.

So we made a very clear effort to make sure that when we turn the two lights off the consumer would not be turned away from that product thinking the product was on order because that wouldn't do us any good as well.

So, yes, we do two, three lights on, but I need to be very clear that we did that. We made a conscious effort to split the ballast to be able to make that happen, but that was one way we could do to insure that during periods such as, in fact, in schools when the machine is not being used that we're saving energy, and that is part of what the ASHRAE does allow.

That is what we do.

MR. COUSINS: And there's nothing wrong with that.

MS. PINTO: No, I'm just trying to understand.

MR. COUSINS: Yes. The ASHRAE methodology does allow that, but the ASHRAE, as a result, the ASHRAE methodology does not

reflect the real life use of the machine. Because if two of the three lights are off in actual use, that means that the machine is really not being used. If the machine is not being used, we're taking the machine out of trade.

In actual use in accounts where we're making money, those lights are going to be fully operational, and not just the lights; any other powered element whether it be, you know, the evaporator fan, for example. Everything is going to be fully operational.

So the way the ASHRAE methodology is right now is that if you have the correct control scheme, it may make the machine appear to be efficient. Whereas in actual use it's not really as efficient.

MR. BROOKMAN: So in school applications, in warehouses where they're only doing one shift, it's eight or ten hours or something like that, and then the machine is not in active use.

MR. COUSINS: And is a minority of our accounts.

MR. BROOKMAN: I see.

MR. COUSINS: But my point is that there's nothing wrong with what you guys have done, but the ? is not making it because that doesn't reflect how the machine is being used, but ASHRAE testing will allow that at this time.

MR. BROOKMAN: Okay. So, Francine, does that answer your question?

MS. PINTO: Just to reflect back what I'm hearing, and correct me if I'm wrong, so there's effort involved in meeting these levels. I know you've already met them, but I'm not hearing any overwhelming major problem. Am I getting that right or not?

MR. HORNQUIST: I have a question.

MR. BROOKMAN: Let's let Glen respond first.

MR. SELFRIDGE: I just want to say one. As I've said, and I'll just repeat one

more time, Trent is right and they are right. I said this morning if we have to meet that level we can do exactly what Dixie is doing, and it has not been discussed today. What I want to know from all of this is if the legislation goes forward, if we can do that and Dixie doesn't have some kind of pending operations or whatever that would suddenly come up to doing a similar thing. Because we have a need and now we have an answer. Our lights are on all the time. But this is a fairly sticky one going with control lights on and paying for the refrigeration.

MR. BROOKMAN: Let me ask this. I may be stepping beyond the scope of this. Is Dixie-Narco able to say where there is a patent pending? That's relevant to this, isn't it?

MR. ROTH: If we turn the lights off, I don't know the answer.

MR. BROOKMAN: Okay.

MS. PINTO: So it is important.

MR. BROOKMAN: That's why I asked it, yeah. Let me go to these two, Andy, just for a second. Go ahead, Steve.

MR. COUSINS: Yeah. The only point I wanted to elaborate on, and Glen touched upon it already. I was saying earlier and challenging Trent. If achieving the TSLs is done by going to more costlier energy efficient component versus non-cost involved control schemes, that that's -- let me back up.

I'm not sure how you can hit the targets. Okay? I don't know if you can hit it with more efficient components or if you need to do something beyond that, but the way my system behaves is that the equipment is more expensive. We just buy less of it, and if the only way we can hit these target is by more efficient components which are costlier, then the net result is we'll probably buy less equipment.

MR. BROOKMAN: Right. You're got

pretty much a fixed budget or something, capital expenditure.

Edwin, I dropped you out. Do you still?

MR. HORNQUIST: Well, yeah, it was just a comment and a question. I'm wondering if what you're saying, Steve, is that a very small portion of your equipment as operated is the market that you serve, would benefit from this control scheme.

MR. COUSINS: No, I wouldn't put it that way because if you look at the equipment that we have, we use sophisticated control schemes in the majority of our cold drink equipment, but we look at guaranteed energy savings versus potential or candidate energy savings.

If there's an elaborate control scheme with the equipment, that doesn't guarantee. If we say, okay, we will become 30 percent more efficient by using this elaborate control scheme, that's not a guaranteed 30

percent energy savings in the trade, and so there's no guaranteed savings on the control algorithm that may not reflect real world.

MR. HORNQUIST: So in this case you have a scheme that is being used using the test method, the ASHRAE test method, that allows for this lighting to be taken down to approximately a third that would otherwise be used.

MR. COUSINS: Well, what we find is that we will with that kind of arrangement, we will have -- we definitely will have additional energy savings with that kind of arrangement, but it may not be the 30 percent that an ASHRAE test or it may not be the same extent that the ASHRAE test demonstrated. Chances are it's going to be something less.

MR. BROOKMAN: In the actual application.

MR. COUSINS: Right.

MR. BROOKMAN: Andrew, you're next in the queue.

MR. deLASKI: Yeah, I had a couple of comments. I think we've heard from the Department in the NOPR and also in the comments today that we're stuck with ASHRAE/ANSI for the moment. You know, final will come out August 8th, but you know, so we're kind of stuck with the method for the moment.

And in my opening comments remarked that why is there a need to reopen that method and to make it reflect real world conditions. I think we're certainly in favor of that, and there are other technologies, additional control to help reflect it accurately with technology benefits.

I had another thought but I've lost it.

MR. BROOKMAN: Okay. We'll come back to you.

Bob.

MR. McGARRAH: To answer Francine's question about patents -- Bob

McGarrah -- to answer that question, there are patented products out there today in the hundreds of thousand numbers for after market equipment, for pieces of equipment that are in the marketplace today. Wal-Mart, for example, has a lot of actually the Pepsi machines with an after market product that's saving 15 to 30 percent.

Austin Energy, the poster child for energy efficiency, has purchased tens of thousands of these after market products for both vending machines and cooler for energy savings up to 46 percent, and that's patented product, but it's available to everyone.

You have the situation here, you know, if Coke has a patent they're not going to give it to Pepsi and vice versa because that's a competitive marketplace advantage.

But there are companies out there today that have patented products that are available to everybody. The patent just says you can't make it in your garage and sell it

to the same people I'm selling it to.

It's available and these products are well under 100 per unit.

MR. BROOKMAN: We don't know the full answer to the question is what I'm hearing.

MR. McGARRAH: So there are patents --

MR. BROOKMAN: That's an illustration there.

MR. McGARRAH: There are patented products that will get you energy savings if you run into an IP or intellectual property issue around some of the things that we're talking about.

MR. BROOKMAN: Andrew.

MR. deLASKI: Going back to this patent issue, when DOE proposed standards for refrigerators in the '90s, there was an assumption at one point that the new refrigerator would use vacuum panels, and DOE tried to guess, you know, what are the panels

that they would use for complying with various standards or made their best estimate, and they admittedly have been wrong.

It's difficult because it's not until these guys go to work figuring out how to do this as cheaply as they can to meet the needs of these guys that you're likely to know the answer to the question of how you're going to get there.

Because there's one patent on one particular way doesn't mean there aren't other ways to get there.

MR. BROOKMAN: Right.

MR. deLASKI: That patent may be perhaps a cheap way to get there, but it doesn't mean someone else can't find another way to get there, and there are probably multiple paths that haven't even been conceived of today.

And I think that is proven true on one standard after the other, that, you know, we're not going to sit here today and figure

out how they're going to do it.

MR. BROOKMAN: Yeah, okay. Thank you.

So the question that I'd like to push to the fore here is the one you see at the top of the screen, impact on small businesses, how small business manufacturers will be affected due to the new energy conservation standards as proposed, as proposed.

Yes, please, and use the microphone. Please say your name for the record.

MR. DOOM: Troy Doom, Dixie-Narco/Crane.

Just one comment of what we've been talking about so far for Class A has been relative to glass front. Class B, the study so far has been relative to stack, although it does capture other ones.

But the impact relative to the combination of vending or the snack portions,

there is a whole area in the proposal[page] 26024 that says it should include those, but the manufacturing base in the detailed analysis of the study hasn't really included the impact into that whole arena because snack machines are a different category. So that is, I think, an open issue that will need to be studied further.

MR. BROOKMAN: Okay. Thank you.

I'm not sure I got that. Did you get that?

Would you repeat the last part of that statement? Because I didn't follow it for some --

MR. DOOM: Yeah.

MR. BROOKMAN: Use the microphone, please.

MR. DOOM: Yeah, I guess it's on page is it 26024? It shows basically a comment about combination vending, which essentially is a snack machine that has cooled the lower portion. So that type of system

hasn't been fully analyzed as the glass front and stack has and is not heavily purchased by Coke and Pepsi. It's a whole other set of manufacturers.

But it's saying that that is going to be rolled into this proposal. So that's really an open issue as far as industry impact and that whole industry base that would need to be further analyzed.

MR. BROOKMAN: Thank you. I appreciate that. Okay. Thank you.

Yes, please. Use the microphone.

MR. CHASSEROT: Marc Chasserot from shecco.

I just have a basic question. If you're going to have these higher standards that are going to force manufacturers to improve their systems with more costly systems and they're now saying they don't really have the money for that, and yet at the same time they're not the ones that are going to reap the benefits from more efficient systems

because they're not the ones paying energy bills, what is the Department of Energy going to do in terms of incentivizing this so that they have an incentive to actually introduce these new products?

MR. BROOKMAN: I don't know whether the Department wishes to.

MS. PINTO: Well, I mean, Francine Pinto. Our authority is limited to promulgating the standards.

MR. BROOKMAN: DOE would not take the lead role in creating incentives.

MS. TARLEY: So you have the stick without the carrot.

MS. PINTO: We don't have that authority.

MR. BROOKMAN: Yeah. Okay. Thank you. That was a clear answer.

So then do we get other comments on how small business manufacturers will be affected due to industry conservation standards?

Yes, Marc, go ahead.

MR. CHASSEROT: Can I ask again? Who would be the appropriate authority then for that?

MS. TARLEY: Utility companies.

MS. HORNQUIST: Utility companies.

MS. TARLEY: States.

MR. HORNQUIST: Congress.

MS. TARLEY: Congress.

MR. BROOKMAN: Yes. I don't think anybody has got additional to say on impact. So shall we then return to the slides? Yeah?

Aris wishes to address the combination machines issue.

MS. PINTO: Oh, and I want to answer. This is Francine Pinto again.

But we do care about the impact. That's why we have these meetings. We put out the analysis. The decision makers -- we're the staff, but the decision makers have to weigh benefits and burdens. We present them with all sides of the issue so that they can

make an informed decision, and that's why the process does take time and why we have all of these analyses, and we try to get as much of your input as possible.

So I don't want to make it sound like we don't care about it because we obviously do, but also have our authority that we've been given by Congress.

MR. BROOKMAN: Aris, do you want to address the combination units?

MR. MARANTAN: Yeah, regarding combination machines, I believe what we have in the notice identifies the combination machines as covered in this rulemaking because of the basis definition that was provided in the legislation.

So if the vending machine has a component that vends bottles or canned beverages, it's considered refrigerated, bottled or canned beverages; it's considered a vending machine covered in this rulemaking.

And so combination machines, DOE

feels that that's covered. To address the idea that it has both snacks and beverages, the idea is that the standards equations takes care of that because only a portion of that vending machine, a smaller portion of that vending machine is refrigerated by the refrigeration system, not the entire inside of the case.

MR. BROOKMAN: Questions on that? Any follow-on?

MR. MARANTAN: I welcome any feedback on that.

MR. BROOKMAN: Go ahead, Steve.

MR. COUSINS: Steve Cousins.

It's not really an issue for Coke since we don't purchase these kind of machines, but if you have a very small refrigerated capacity because the packages that you're vending in that snack machine is pretty small, the limitations with what's used, what's available by way of refrigeration component, I know it may have to be studied,

but it may be a situation where the efficiencies are going to be -- you're going to be less efficient just because of the availability of the refrigeration component. I don't know if that's true or not, but I would imagine that would be a factor that would enter into this.

MR. BROOKMAN: That configuration may diminish the inherent efficiency.

MR. COUSINS: You have to end up using a larger refrigeration system because the small one is not commercially available for the true load that's there.

I don't know if that's the case or not. Maybe these guys will have a better feel for it, but that would have an impact I would guess.

MR. BROOKMAN: Please say your name again.

MR. DOOM: Yeah, Troy Doom, Dixie-Narco/Crane.

Yeah, I mean, one, I guess with a

smaller refrigeration area than the total kilowatts per day requirement is going to be, you know, less than the other vending machines, but I think my point more was that whole arena, the snack machines, the supply base, you have your, you know, AMS, USI. These are not machines that Coke and Pepsi purchase. There's a whole other area that benched marked in review for industry impact that hasn't been done. So I'm not prepared to comment on it. I just want to say that the Class A and B, you know, refer to glass front and stack. Class B is supposed to capture that other category, but I think all of the analysis and impact isn't available.

MR. BROOKMAN: Are there a lot of them out there, those combination units?

MR. DOOM: I don't know, Sriram, if you'd be able to comment on that. I'm not sure of the percentage of the total base.

MS. TARLEY: This is Trent from Dixie-Narco.

I don't know. It's very small. So I need to understand what the number is. I don't. We can get that. It's small, to understand the impact, because we have not done anything on this combination.

MR. BROOKMAN: Aris, do you want to say anything more on that before we move on?

MR. MARANTAN: Just the fact that it has been very hard to get any data on those combinations. We understand the shipments to be small as well.

MR. BROOKMAN: Okay.

MR. SOMASUNDARAM: Okay. Sriram Somasundaram, Pacific Northwest National Lab.

I'm here to wrap up the slide presentations pretty much. There are three or four more steps of impact analyses that we do at this stage of the rulemaking primarily to assess the impact of setting these standards on the electric grid in this case because it is electricity consuming equipment.

So we investigate the effects on utilities from reduced energy consumption of these higher efficient equipment, and we do this using the NEMS-BT model, the national energy modeling system, tailored for DOE's building technologies program, and it is published or it's maintained by EIA, which is another arm of DOE.

The output of this analysis is changes in electricity sales and prices by region of the country, and changes to the mix of electricity generation in the country and changes in installed capacity and generation of electricity.

And those are also reported as part of the rulemaking in the different chapters of the TSD.

And this particular utility impact analysis is in Chapter 14.

The next step is to do the employment impact analysis. There is a direct and indirect impact on employment. Direct

impact on employment is captured in the manufacturer impact analysis that NCI reported earlier.

The indirect impact is captured using a model called ImSET or impact of sector energy technologies that was developed by Pacific Northwest National Laboratory, and this particular model estimates the changes in employment and the industry output and wage income to this BVM industry.

And because of setting the standards in the beverage vending machine market to the overall United States economy resulting from changes in expenditures in the various sectors of the economy, so it does a sector-by-sector assessment of economic changes. It also estimates changes in cost and benefits using from the national energy savings analysis and together with the direct employment impact's capture in the MIA, reports the change in employment in the national economy, overall national economy.

Other than in the manufacturing sector being regulated, which is the beverage vending machine industry, as a consequence of these energy conservation standards.

And as you probably saw in the results reported in the notice, the impact on the indirect employment is very small because of these standards.

And this is in Chapter 15 of the TSD.

The next step is the environmental assessment, where together with the utility impact, as I talked about the impact on the electricity sales and prices and generation capacity, there is then an environmental aspect associated with that, and that's what's captured here. Again, using the NEMS output model and NEMS-BT model.

We calculated a reduction in power plant emissions of carbon dioxide, nitrogen oxides and mercury. The sulfur dioxide emissions are not included in this particular

study or impact analysis because of the emissions cap set by the Clean Air Act amendments of 1990. So SO$_2$ is considered already capped, and emission changes in this particular rulemaking was estimated as too small to affect values of emissions, allowance allowed under the CAP.

We also converted the amounts of each of these emissions into a monetized value using a dollar value per unit of emissions, so CO$_2$, NOx and those are all reported in Chapter 16 of the TSD.

Finally, we also are required to conduct a regular impact analysis which primarily investigates the national impacts due to non-regulatory approaches and alternatives to this regulatory process.

So the four different non-regulatory options or alternatives we consider in our qualitative analysis were either no new regulatory action at all or some process of commercial customer rebates to the purchasers

of this equipment, or commercial customer tax credits, say, from the federal government, and finally we looked at the approach of alternative call voluntary energy efficiency targets, such the ENERGY STAR program that already exists for this particular product.

We conducted a qualitative comparison of all these four non-regulatory alternatives to the regulatory process and came to the conclusion that this particular market structure, the particular BVM market structure did not allow for a successful quantitative analysis of these alternatives on whether more energy efficient equipment can be used or sold in the market.

So we report the qualitative analysis results in Chapter 17 of the TSD as well as in the final section of the rule.

So that pretty much concludes the NOPR analyses, and I think if there aren't any questions, I might pause here to see if there are any questions on these four steps.

MR. BROOKMAN: Yeah, I think that's a good practice.

So you can see the final three or four, four different elements of analysis that are all considered and rolled into the proposed standard. So comments, issues related to these, if there be any? Okay.

MR. LLENZA: This is Charles Llenza, Department of Energy.

My team in the Department here would like to revisit a little bit of the earlier discussion here, whether or not by de-facto the industry is now meeting the proposed standard levels. Can you just restate your position once again in terms of our proposed standard levels?

Could we hear one more time to make sure we understand this?

MR. ROTH: Trent Roth from Dixie-Narco.

Class A on your proposed levels right now the ASHRAE testing, we currently

meet those levels. In Class B we do not.

MR. BROOKMAN: Okay. Glen.

MR. SELFRIDGE: For Class A we do not currently meet those levels, but given no intellectual property problem, we could meet them fairly easily.

For the Type B machine we do not meet them, but we could without tremendous effort.

MR. BROOKMAN: Okay. That's good. I just want to confirm. There's no other manufacturer in the room, right? No. Okay. I just wanted to.

MR. LLENZA: Okay, good.

MR. BROOKMAN: Thank you very much for that, yes.

MR. SOMASUNDARAM: So finally, this is the most important step, that we would like comments, latest by July 28th if not earlier, and this is the process by which you can send us your written comments, either by E-mail or --

MR. LLENZA: This is Charles Llenza, Department of Energy again.

Sometimes we send a lot of things to Brenda, but I think if we're sending comments electronically, if you use the portal there, the E-mail portal for beverage vending rulemaking, it goes into a docket system and it's the better place to use if we're going to do electronic, and of course, you've got the mail and the courier for the other one.

Also, my link is there in case you want to, you know. If you have some further questions or something, you could shoot me an E-mail. I would be glad to help you out on that.

MR. BROOKMAN: Steve.

MR. COUSINS: I have a question with respect to the manufacturers. I just heard you say that you think you can hit the targets. My question is can you hit the target for a self-styled solid front.

Do you know or you don't know?

MR. BROOKMAN: Glen?

MR. SELFRIDGE: Okay. I'll take the first

MR. COUSINS: You don't even have to answer the question. My concern is that, you know, you quickly said you can hit the target, but have you considered the definition of an A and a B.

MR. BROOKMAN: A reconfigured machine.

MR. COUSINS: Well, I'm saying it may be machine configurations where you cannot hit that target.

MR. SELFRIDGE: Okay. That's possible if you had a closed front.

MR. COUSINS: Right.

MR. SELFRIDGE: (Speaking from an unmiked location.)

MR. COUSINS: Well, I'm suggesting your refrigeration levels may be higher.

MR. SELFRIDGE: The refrigeration actually is lower. (Speaking from an unmiked

location.)

MR. COUSINS: Well, if I want to increase storage capacity in a solid front shelf styled arrangement, in other words, I want to put cans in a shelf style machine and I want to pack out, maximize for that purpose, on a solid front machine, can you hit the target?

My guess is you can't hit that target. You can't hit the TSL target. That's my guess. I would be very surprised if you said you could.

So the only thing I'm cautioning you on is you quickly said, yes, we can hit the targets. I would challenge that maybe you cannot hit the targets or the configurations that we would purchase.

MR. BROOKMAN: Trent.

MS. TARLEY: This Trent from Dixie-Narco.

I mean, I would agree that it would be a very big challenge. A lot of it

will come back to you because as you as a purchaser understand. How do we start to look at the requirements that, for instance, Coca-Cola has for lighting, and knowing that we have this, what are the things that we have to change?

I think what you're saying on Glen's comment, it's a Class A machine. You're going to have when you add the lighting in it, you're expecting light to decide the same way you do on a B machine today.

MR. COUSINS: Yeah, I'm thinking even with that light you may not hit the target.

MR. SELFRIDGE: Well, this is Glen again. I think you probably could. With that particular machine, I would say probably we could if we could dull the lighting, if you go to refrigeration mode. The volume would be up (speaking from an unmiked location). And it's a variable capacity. But that just brings me back to my original -- one of my

original concerns, was that the methodology that uses the ASHRAE energy management system is it takes the lights out of the equation, is not allowing for any other technology.

If you take the lights out at three and a half kilowatt hours right now, today, on a medium size Class A, in terms of refrigerating that thing, there's not much space left to go.

MR. COUSINS: Well, yeah, that's right. There's not much space.

MR. SELFRIDGE: And there are not many options.

MR. COUSINS: What I'm concerned about is if Coke says, "We want to have a U Vend shelf style machine," you know, I wouldn't want for the world to come back and say, "Well, legally we can't build that for you, and by the way, technology is not good enough to allow you to do that."

MR. SELFRIDGE: Well, that's exactly where I was headed with my overall

objection. Until we decide we could meet this on a regular Type A machine by doing that, but the other side of that coin is you're limiting technology into you're clearing a lot of them with that level because --

MR. COUSINS: And I want to look at the numbers again. I'm not convinced that -- yeah, maybe the majority of the machines that we guy in the store in the past will be okay with these TSLs, but, hey, I think I would want to take advantage of what time I have now between now and the 28th of July to see if we can make it.

MR. BROOKMAN: So additional questions and comments about these presentation materials, this last bunch. Some of it is fairly complicated. You saw also the questions that the Department wanted you to respond to specifically. Any additional thoughts on those before we turn to the final phase of the meeting today?

Yes, Nina.

MS. TARLEY: Nina Tarley, Pepsi Co.

My comment is on the discussion. Pepsi Co.'s approach is that we would like to save as much energy as possible in the most cost efficient way. So if my choice is, for example, an option that costs nothing and allows us to save even small percentage of energy and potentially to promote cheap even larger, that's definitely our first choice.

As you know, there are a lot of energy management devices available now in the market. They all cost a lot of money, and they're not allowed to be used during the energy testing. So that always becomes not the first choice because you're looking at extra cost with some maybe guaranteed ban if you took energy saving. But we're not allowed to use it during the testing protocol. So that's how we group, you know.

The objective is save the most energy and the most cost efficient way.

MR. BROOKMAN: Okay. thank you. Thanks for clarifying that and that illustration as well.

Any additional comments at this point?

(No response.)

MR. BROOKMAN: So now there's one more opportunity to thank. Now there's an opportunity for anybody to make closing remarks to summary remarks, issues that you wish to bring to the floor that you haven't covered already?

(No response.)

MR. BROOKMAN: No closing remarks. Okay. So then for my part I'm going to turn it back to Charles Llenza, who is the senior federal official, and I would just thank all of you for what was a very productive workshop. I appreciate the candor and the sense of exchange, what happened here.

The final page in your packet it an evaluation form. Please take one minute to

fill it out. The Department reads them carefully. They're always looking for a way to do these meetings better.

So thanks to all of you.

MR. LLENZA: I just want to say thank you for attending the meeting, we are eager to receive your comments in written form, and once again I just want to emphasize these are the methods to getting your comments back to us as soon as possible.

And thanks for attending the meeting. That's all I have.

MR. BROOKMAN: Thank you.

(Whereupon, at 2:18 p.m., the public meeting was concluded.)

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